JPRS-TTP-92-005
3 APRIL 1992

JPRS Report

Telecommunications

Telecommunications

JPRS-TTP-92-005 3 April 1992

CONTENTS

BANGLADESH

EGYPT

INDIA

IRAN

PAKISTAN

SUDAN

COMMONWEALTH OF INDEPENDENT STATES

WEST EUROPE

REGIONAL AFFAIRS

Brazil, U.S. Sign Telecommunications Agreement

PY2703031692 Brasilia Voz do Brasil Network in Portuguese 2200 GMT 26 Mar 92

[Text] In Rio de Janeiro, Brazilian and U.S. Government representatives have signed a basic agreement on technological cooperation in order to continue the official exchange of information in the telecommunications field.

[Begin recording] [Reporter Nielmar de Oliveira] Among other people, the agreement was signed by Infrastructure Minister Joao Santana and National Communications Secretary Joel Rauber, representing Brazil, and by U.S. Ambassador Bradley Holmes, representing the United States.

Minister Joao Santana talked about the importance of the agreement.

[Santana] Today we signed an agreement with ITT and Telebras [Brazilian Telecommunications, Inc.] for joint laboratory and research work. This is fundamental for Brazil because we will have an open high technology gate in such a sensitive area as the telecommunications area.

[Oliveira] The agreement not only involves technological research, but also the development of system substations and television, digital telephone, and satellite networks. [end recording]

Russia, U.S. Establish Satellite TV, Radio Link

PM1703124592 Moscow Teleradiokompaniya Ostankino Television First Program Network in Russian 1200 GMT 13 Mar 92

[From the "Novosti" newscast: Video report by S. Frolov and Yu. Kun]

[Text] [Announcer] The Ostankino Russian State Television and Radio Company, the Russian Communication Ministry's Space Communications Association, and the U.S. federal contract institute [federalnyy institut dogovorov ssha] have signed a contract in Moscow on cooperation in the sphere of satellite television and radio broadcasting.

[Frolov] This document marks the creation of a joint Russian-American radio and television broadcasting company, the "Moskva Globalnaya" ["Moscow Global"], and the beginning of its practical activities. Thus the first step has been taken in establishing permanent space-based television communications between the United States and the CIS.

The channel will provide an opportunity for television communications between people with the same language, culture, and origins who now live in different countries. This applies both to Russian speakers and other peoples. The channel will be available for joint programs and actions with foreign partners, especially in the sphere of contacts between people. At the same time it is intended to help establish a market economy in Russia and other CIS states and to facilitate a direct exchange of information between commercial organizations and employers. The main thing for the "Moskva Globalnaya" channel now is to acquire its own identity in world broadcasting.

France, Japan To Cooperate in HDTV Development

92AN0122A Paris ELECTRONIQUE INTERNATIONAL HEBDO in French 28 Nov 91 p 6

[Text] The agreement on compatible production standards between both countries could give impetus to HDTV [high-definition television] developments.

The HDTV saga is consistently upholding its reputation of being rich, complex, and whimsical. After the European Parliament surprise vote on a highly controversial British Conservative amendment tending to oppose the adoption of HD-MAC [High-Definition Multiplexed Analog Component] as the single HDTV standard for Europe, France and Japan have signed an agreement in the field of HDTV production standards.

During his visit to Tokyo, Post and Telecommunications Minister Jean-Marie Rausch and his Japanese counterpart, Hideo Watanabe, announced that they would set up a working group before the end of the year.

66 Hours a Week of HDTV Programs

The aim is to jointly study and develop a converter for the European and Japanese systems. The project will involve industry people from both countries. Europe has its own 16/9-format, 1250-line image standard, whereas the Japanese use a system based on 1125 lines. Could this French-Japanese "pas de deux" be the basis of much wider maneuvering in the budding "TV of the future" market? In any case it should be said that it was the MAC Paquet GIE [economic interest group], involving Thomson Consumer Electronics, Philips, TDF [French Telecasting], and British National Telecommunications, which first took the initiative by starting negotiations, a few weeks ago, to sell D2-MAC [Definition 2 Multiplexed Analog Component] licenses to Japanese industry.

In Japan, the audiovisual industry and radio networks are moving ahead at full speed. They have just launched a 66 hour per week HDTV program relayed by the BS3-B satellite and featuring mostly sports programs, concerts, and plays. A consortium was formed around this project, including the NHK national TV channel, Sony, Hitachi, and Panasonic, among others.

German Telecommunications Firm To Enter East European Market

92WS0262A Duesseldorf VDI NACHRICHTEN in German 27 Dec 91 p 8

[Unattributed article on conversation of Dr. Michael Schwarzer, managing director of ANT, with Martin

Buchenau, Caspar Busse, Petra Meffert, and Bettina Weberling: "East German Telephone Mess Stimulates Business; Romantes Project for Satellite Communication in the USSR Planned"—first two paragraphs are VDI NACHRICHTEN introduction]

[Text] Backnang, 27 Dec (VDI-N)—Competitive pressure causes profit margin in communications technology to shrink.

The liberalization of the telecommunications market is now forcing even the Swabian high-tech company ANT to change its ways of thinking. Increasing competition is affecting profits. ANT Managing Director Dr. Michael Schwarzer revealed some strategies for the future in a conversation with trainees from the Georg von Holtzbrinck School.

"We are well equipped for the future and need not fear international competition." With these words, ANT managing director Michael Schwarzer outlined the situation of his company. ANT-Nachrichtentechnik GmbH (annual sales of 1.4 billion German marks [DM]) in Backnang handles Bosch Telecom's public communications sector. Along with private and mobile communications technology, Bosch Telecom had sales of DM7.2 billion in 1991. Thus, the Swabians rank, worldwide, as number eight behind telecommunications giants such as the French Alcatel (DM26.8 billion) and the U.S. company AT&T (DM26.2 billion).

Schwarzer is even happier about recent growth: For 1991, he anticipated a 10 percent jump in sales. However, the profit situation cannot keep pace with that. The reason is the drop in prices of as much as 7 percent in the highly competitive telecom market. Cost cutting measures such as shorter development and production times can only partially compensate for the drop in profits, concedes ANT Managing Director Schwarzer. The reason for the increase in sales is the strong demand from the new German laender. The German Bundespost Telekom will have to invest approximately DM55 million in the ailing telephone network of the former GDR during the next six years. In awarding the contracts, the ministers in Bonn noted that ANT is building production facilities and creating jobs in the new German laender. "In the first three years, we will invest DM60 million in the new German laender," Schwarzer described the movement. ANT has bought the microwave radio and information technology sectors from the former Robotron company in Redeberg near Dresden.

Within the framework of turn-key programs, ANT is installing ready-to-use communications systems for the Bundespost. By the end of 1997, the new German laender will have the most modern telecommunications network in Germany. Therefore, Schwarzer already has his eye on the growth markets in Eastern Europe. Preliminary negotiations are already underway for the Romantes satellite-supported communications network in the former Soviet Union. ANT hopes to be able to deliver satellites, ground stations, and ground communications technology valued at more than DM100 million. "However, the main problem is the financing of the planned project," Schwarzer realistically admits. "Romantes should be covered by private capital and not by state credits."

Worldwide, ANT is looking for additional partners. So far, the Swabians are not active in the Far East; communications technology is being installed only in Thailand. Schwarzer cites his motto: "The cobbler must stick to his last." According to him, Bosch-Telecom is not a global player and must therefore define priorities for its activities. "With our location in Western Germany we have not been competitive over the long term," admits Schwarzer. "It is not easy to conduct international business in this island. Cooperative arrangements are however quite desirable and necessary to compensate for the lack of size." Therefore, partners who cover other regions or technologies would be considered. ANT is already cooperating with its competitors: With Siemens in switching technology, with SEL/Alcatel in radio, and with Philips in mobile radio technology. "We are, however, not a takeover candidate," warns Schwarzer. The legal form of ANT's parent company Bosch GmbH—a private foundation—rules out a hostile takeover.

Schwarzer feels well equipped for the European Single Market in the areas of technology and marketing. "Cooperation with competent partners in various sectors broadens our access to the market." For the planned digital mobile radio network (D-Net), ANT is delivering communications technology based on new EC standards both to the Bundespost Telekom and to the private network supplier Mannesmann. Domestically, ANT has orders from the two services in the amount of DM200 million, plus another DM100 million abroad.

Schwarzer did not wish to label himself a friend of the old postal monopoly. To date 80 percent of ANT's sales have been under government contracts. However: "Bosch and ANT have made the most of the monopoly situation." Such a situation would in fact hinder progress, nevertheless "these purveyors to the court have made sure that Western Germany has the most modern telecommunications network in Europe."

Compared to U.S. standards, however, Europe lags in the implementation of what is technically feasible. In America, with Centrex, an intelligent telephone switching system which can do more than simply switch a call from point A to point B is available to every private customer. It is possible for every user to place incoming calls in a queue, to establish conference calls, or to forward calls to his current location.

This system is technically possible in Europe with the private automatic branch exchange (PABX). "An interesting situation, which I would welcome," says Schwarzer. In the same breath, the ANT head points out that the introduction of a comparable service in Germany is not favored by his colleagues at Telenorma, who

are responsible in the Bosch group for private communications (branch exchanges for large clients). Whether anything comparable to Centrex will be available to the approximately 27 million private households anytime soon depends on the will of the German Bundespost.

Swedish Telecom Wins Baltic Networks Contracts

92WS0269K Chichester INTERNATIONAL TELECOMMUNICATIONS INTELLIGENCE in English 2 Dec 91 p 3

[Unattributed article: "Televerket Mopping Up Baltic Networks"]

[Text] Swedish Telecom (Televerket) is once again poised to enter a joint venture agreement with a member of the Baltic states. The agreement, with the Latvian Government, will establish a company which will upgrade the entire Latvian telephone network. A similar agreement was recently reached with Estonia (see ITI Issue 313).

Under the Letter of Intent, covering a cooperation agreement with Latvia, the new company, to be called Lattelekom, is expected to be formed by the beginning of 1992.

The Latvian Government will be the majority shareholder of the new company, while Televerket's subsidiary, Swedish Telecom International will own the remaining, minority post. For the first two years of the agreement, Televerket will be responsible for the investment in new hardware.

Much of the technical know-how and development work will be carried out using Swedish resources, and the new company will have close ties to the Swedish telecommunications region of Kalmar which will provide staff for the venture. However, the main body of its employees will come from Latvia.

Televerket's subsidiary, Swedtel, will carry out the operative work on the venture.

Over the next two years, the intention is to install 75,000 new telephone lines in Latvia and 40,000 lines in Estonia.

Other short-term projects include installation of the basic structures for international gateways and an optical fibre network, as well as a radio link to connect the Latvian capital, Riga to the international network.

According to Swedish Telecom, the project will require an investment of over SKr1 billion over the next two years.

Swedish Telecom International is also part of a joint-venture company recently established to install and operate a nation-wide NMT cellular mobile telephone system in Latvia (see ITI Issue 313).

Total Televerket investments in Latvia through to 1995 is put at between SKr2 billion and SKr3 billion.

Over the past year, Televerket has signed four major contracts with Latvia and Estonia. In Estonia, a Memorandum of Understanding was signed in February this year to upgrade Estonian telecom infrastructure (see ITI Issue 283). This was followed in April by an agreement to establish a cellular joint venture company with the Ministry of Posts and Telecommunications of Estonia (see ITI Issue 289).

GHANA

Minister: State Monopoly of Media 'May Soon End'

EA1603205292 Nairobi KNA in English 0745 GMT 16 Mar 92

[Excerpt] Accra, 16 Mar (KNA/PANA): State monopoly of radio broadcast and television in Ghana may soon end, the country's Information Secretary Kofi Totobi Quakyi said here Saturday [14 March] night. Speaking at the 1991 awards night for Ghanaian journalists, he said with the advent of direct satellite broadcasting there was the need to review existing regulations on private broadcasting in the country. He said the national communication policy seminar scheduled for April would, among other things, propose an appropriate framework and guidelines for the operation of private cable television and community FM stations. [passage omitted]

GUINEA

Radio Announces New Frequencies

AB1803193392 Conakry Radiodiffusion Nationale de la Republique de Guinee in French 0645 GMT 18 Mar 92

[Text] Many Guineans in Conakry and the various prefectures have not been listening to programs of the national broadcasting station any more because they do not know which frequency to tune. Nonetheless, despite the breakdown of the Kipe transmission center, two frequencies have been operating from Sofoniya since 10 March, and programs can be heard even in Europe. Here is Ben Daouda Sylla with a report:

[Sylla] According to a communique issued by the national executive board of the Guinean Radio-Television (RTG), the national broadcasting station has two new frequencies for a [words indistinct]. The technical characteristics are 7125 kHz in the 41-meter band and 9650 kHz in the 31-meter band. The two frequencies are operating from the Sofoniya 1 transmitting center. They have come into operation because of the technical breakdown of the equipment at the Kipe transmitting center, which needs to be completely rehauled. The 1404 kHz frequency, which is on what is commonly known as medium wave, is not working, while the frequency on 4910 kHz is no longer worth talking about; listeners of these old frequencies have been cut off from RTG's national news. In order not to lose face, the telecommunication services have taken the bull by the horns so that they can respond to the new policy of the Guinean press, which is trying to be sufficiently equipped in order to stimulate the ongoing changes and to better service the people. However, there are still a lot of Guineans in the interior who are unaware of the new frequencies. For example, during a trip to Kindia on 13 March, we had to explain and show a family how to tune the new radio frequencies. Radio Guinea is operating very well and even outside our country.

This is evidenced by the fact that Radio Guinea's central studio always receives listeners' calls from Paris or the United States. All that one needs to do is tune either the 41 or 31 meter band on your radio set; in the 41-meter bank adjust your radio to 7125 kHz and to 9650 kHz in the 31-meter band. You will be able listen to Radio Guinea until midnight with its new structure.

4 Microwave Lines Being Built in Heilongjiang

SK2403044392 Harbin Heilongjiang People's Radio Network in Mandarin 2200 GMT 22 Mar 92

[Summary] Construction of the large-capacity Harbin-Heihe, Harbin-Jagdaqi, Harbin-Jiamusi, and Qiqihar-Beian digital microwave trunk lines, key construction projects of Heilongjiang Province, is being stepped up. Total length of the four microwave lines is 2,000 km.

Alcatel To Supply More Telecommunications Equipment

92WS0352P Chichester INTERNATIONAL TELECOMMUNICATIONS INTELLIGENCE in English 20 Jan 92 p 13

[Text] The telecommunications administrations of the provinces of Xinjiang, Nei-Mongolia, Gansu and Quizhou have awarded Alcatel's Spanish subsidiary, Alcatel Standard Electrica, contracts worth more than ECU77.2 million to supply telecommunications equipment.

In total, the four contracts include the supply of more than 400,000 Alcatel 1000 S12 digital telephone lines, transmission systems and associated cables, as well as installation and training services.

Including these latest contracts, Alcatel Standard Electrica has signed a total of 15 contracts in 12 provinces to supply 1.2 million telephone lines, of which 400,000 have already been supplied.

The Alcatel group claims to hold 40 percent of China's digital switching market with about 5.7 million lines installed or on order. In the transmission sector—with an installed base of 10,000 km of microwave and 1,500 km of fibre optic links—Alcatel has a 20 percent market share, it claims.

CZECHOSLOVAKIA

Alcatel Awarded First Czech Digital Exchange Contract

92WS0269M Chichester INTERNATIONAL TELECOMMUNICATIONS INTELLIGENCE in English 9 Dec 91 p 1

[Article: "Czechoslovakia: Alcatel Receives First Digital Exchange Orders"]

[Text] Alcatel SEL, the German subsidiary of Alcatel NV, has been awarded a contract by the Post and Telecommunications Administration of Prague (SPT-Praha) to supply and install its 1000 S 12 digital exchanges in Prague and Ostrava during 1992. The value of the contract is around DM45 million.

Alcatel SEL TLH a.s., the joint venture of Alcatel SEL and the Czechoslovakian company, Tesla Liptovsky Hradok created earlier this year (see ITI Issue 297), will be involved in the project.

A DM70-million frame agreement has been signed for the Slovak region. It includes network groups serving Bratislava, Nitra, Banska Bystrica and Zllina and will be implemented in 1992-93.

Alcatel SEL has a 60-percent share in the Alcatel SEL TLH joint venture, with TESLA Liptovsky Hradok holding the remaining 40 percent. Production of Alcatel 1000 S 12 switching systems in the Slovak town of Liptovsky Hradok will begin shortly. The initial output will be 250,000 lines per year.

The contracts follow the Czechoslovakian PTT's decision in June to select Alcatel as one of the two suppliers for digital switching systems (see ITI Issue 298). Siemens was the other company selected which recently announced that it will be supplying 155,000 EWSD lines next year (see ITI Issue 316).

HUNGARY

3 Firms To Set Up VSAT Data Transfer System

92WS0246C Budapest FIGYELO in Hungarian 5 Dec 91 p 5

[Unattributed article: "New Satellite Telecommunications System"]

[Text] A great improvement in the Hungarian telecommunications infrastructure can be expected from an undertaking which the Hungarian Broadcasting Enterprise, BCN Communications Network Planning and Service Ltd. and the Hungarian Telegraph Office have now declared their intention to create. The goal of the joint undertaking is to create and operate a VSAT artificial satellite data transmission system, which is suitable for satisfying a number of user needs.

The undertaking is intended not only to satisfy its own needs. It is expected that beginning from the first of next year it will be capable of creating a satellite telecommunications link—substantially more reliable than a cable link—between any two localities, for example for the computer systems of banks, insurance companies or government organs. BCN Ltd. has the expertise in packet switched data transmission technology to do this, the Broadcasting Enterprise is experienced in microwave techniques and the MTI ([Hungarian Telegraph Office] a news agency), as a firm with the largest private data network in Hungary, will make available its achievements in the area of data processing.

REGIONAL AFFAIRS

Sudan, Egypt To Cooperate in Radio, TV Unions

EA1603211992 Khartoum SUNA in French 0930 GMT 16 Mar 92

[Text] Khartoum 16 Mar (SUNA): At its periodical meeting on Sunday [15 March] in Khartoum, the Council of Ministers approved an agreement on cooperation between the Sudanese and Egyptian radio and television unions.

The agreement, which was presented to the cabinet by the secretary general at the Ministry of Culture, Mr. Amir Hasan 'Umar, dealt mainly with the possibility of Sudan receiving [programs] from the Egyptian space base. [as received]

Television 'War' Between India, Pakistan

Pakistan Satellite Transmissions

92WT0122A New Delhi PATRIOT in English 3 Feb 92 p 8

[Unattributed article: "India, Pakistan 'Star War' Hots Up"]

[Text] Islamabad, Feb 2 (ANI)—While the massed armies and guns of the Indian 8th Mountain Division face their Pakistani counterparts across the line of control in the northern wastes of Kashmir, an altogether different battle is being waged in the skies far above their heads. Somewhere among the clouds above the weapons of war (the humble microwave dish, the swift and silent-footed radio wave, the mighty satellite) engage in dexterous aerial dogfights for domination of the airwaves.

Infiltration of her neighbour's airwaves is novel practice neither for India nor Pakistan. For years, Indian television and radio transmitters have been broadcasting into the more remote areas of eastern and northern Pakistan. And Kashmiris have for some time now been able to tune into both Pakistani and Chinese broadcasts on their TV sets or their radios. But what is now apparent is that over recent weeks the stakes have become considerably higher.

Since new year's day, Pakistan has been running pilot programmes on its recently acquired satellite channel. Satellite link-up has been provided, via Asia-Sat, by the Hong Kong based 'Star TV'. And while the satellite phenomenon has been a recent one in India, the market has been expanding at remarkable rate. As prices for the eight-foot dishes continue to plummet, customers are flocking to buy their way into this new world of entertainment. Some even prefer to stick with the older and more expensive twelve-foot dishes which they can proudly display on their rooftops.

The programmes currently being aired by the Government-run Pakistan TV (PTV) are causing little alarm, either in the patriotic Indian's living room or in the corridors of the Information and Broadcasting Ministry. So far, India has been honoured with a mixture of poor dramas, badly directed plays, and just about everything you'd expect from the home-grown Doordarshan service.

But with the government either unwilling or unable to do anything about the satellite invasion, there is great potential here. PTV has already announced its decision to begin broadcasting news on Star TV's Fifth Channel, a move which is bound to wake the alarmists.

Many believe this is already the case. A few are of the opinion that India's strategy hasn't been quite as obvious as that of PTV. One dish owner was convinced that India is broadcasting a number of 'special' programmes from the outlying areas of Kashmir. These, he maintained, included Indian feature films that had already fallen foul of the censor's axe. "You see, the scenes of nudity and the violence are meant to corrupt our Islamic brethren," he explained.

But the truth is that the Indian Government is lagging far behind in this proxy war. While PTV has announced its intention to put on a special telecast targetted at Jammu and Kashmir, India has been falling further and further behind targets to strengthen electronic media broadcasts in the State.

Delhi's accusations about 'foreign-inspired' secessionist activity in the Valley, a 1990 proposal to augment the power of the TV transmitter in Jammu has been axed and two radio station projects for Jammu and Kashmir have been postponed.

Jamming Plans

92WT0122B Madras INDIAN EXPRESS in English 9 Feb 92 p 20

[Article from EXPRESS NEWS SERVICE: "Negative News From Pak Will Be Jammed"]

[Text] Bombay—High power transmitters are being put up along the Indo-Pak border for the transmission of Indian television programmes in the border areas and block Pakistan TV programmes, according to Dr. (Ms.) Girija Vyas, Deputy Minister for Information and Broadcasting.

Talking to the newsmen here on Friday, at "Meet the Press" organised by the Press Guild of India, she said that while the Indian Government would allow the reception of Pakistan TV programmes as there was no law against this kind of encroachment of space, "we will certainly block, jam or intercept all the negative news from Pakistan."

Elaborating on this, she reiterated the government's resolve to stop reception in India of programmes telecast by Pakistan for propaganda and said that they had already started installing high-power transmitters along the border areas of Gujarat, Rajasthan and Srinagar.

While in some places the installation was complete, in many places the work would be completed within a couple of months.

The main emphasis of these high-powered transmission centres would be to give more of regional programmes and point out the distorted news telecast by Pakistan TV.

Answering a question raised on the granting of autonomy to Doordarshan, she said that the stage was set for gradual privatisation of the electronic media. Autonomy to Doordarshan would be given through public corporations in the next three months, she said.

She said that two committees which were formed to look into the aspect of privatisation of electronic media had suggested that it should be done through the formation of public corporations.

When asked whether the process of privatisation was being expedited due to the intrusion of Star TV and CNN, she said that Doordarshan was not viewing these entries as a 'threat' but as 'a challenge'. In fact, Doordarshan was already gearing itself, and the second channel in the metro centres and seven regional centres would be given to the private sectors so as to enliven the local TV.

When questioned on the partisan approach of Doordarshan, she admitted that 'Delhiites' do get a lot of favours in many programmes, and she assured that she would see to it that 'non-Delhiites' also got a chance to feature in national programmes.

Lebanon, Syria Sign Telecommunications Agreement

NC2803124192 Beirut Radio Lebanon in Arabic 0900 GMT 28 Mar 92

[Text] Lebanese Telecommunications Minister Dr. George Sa'adah and Syrian Communications Minister Murad Quwwatli signed an agreement this morning to enhance bilateral communications and to implement joint international telecommunications projects. The signing ceremony was held at the Bristol Hotel in Beirut.

Speaking to correspondents after the ceremony, Minister Quwwatli said: We have agreed on important matters. We have drawn up the main outlines to accomplish important work to enhance telecommunications.

Minister Sa'adah affirmed that important projects have been started. A project to establish a telecommunication link between Beirut and Damascus and between Beirut and Tartus via Tripoli will be implemented. This is in addition to the lines between Beirut and Cyprus that will be utilized by the two countries.

[Beirut Voice of Lebanon in Arabic at 0915 GMT on 28 March in a similar report adds: "Lebanese Telecommunications Minister George Sa'adah and Syrian Telecommunications Minister Murad Quwwatli this morning signed a joint agreement on the executive steps for a submarine cable project between Beirut and Alexandria and between Tartus and Cyprus."]

AFGHANISTAN

New Telephone Exchange Installed in Ghazni

92WT0127B Kabul THE KABUL TIMES in English 8 Jan 92 p 4

[Unattributed article: "New Telephone Exchange in Ghazni"]

[Text] A telephone exchange was recently installed in Ghazni province. Likewise, 3 telephone exchanges have been reactivated by the employees of Ghazni communication department. (BIA)

Wireless Units To Be Installed in Border Provinces

92WT0127A Kabul THE KABUL TIMES in English 5 Jan 92 p 2

[Article by Karwan: "24 Wireless Units for Border Provinces"]

[Text] In compliance with resolution number 104 of Qaus 18, 1370 H.S. [9 Dec 1991] of the Council of Ministers of the Republic of Afghanistan, the concerned authorities of the ministry of communication paid a visit to the Radio, telecommunication, television and other economic institutions and projects of the Nemroz, Farah, Helmand and Kandahar provinces to study various aspects of work and activities of these organs and subsequently adopt appropriate decisions to remove the shortcomings if any. In this connection, one of the officials of the ministry said as follows to our economic correspondent:

In view of the objective conditions in the border provinces of the country such as Nemroz, Farah, Helmand and Kandahar, numerous projects to the benefit of the public have been undertaken including the ones of Radio and TV services to take the local and other programmes to the local residents. To ensure speedy communication between these provinces and other ones in the country, wireless services and tropospheric links have been established. Moreover, the intercity communication services have been ensured by local telephone switchboards in these provinces.

In a bid to make telecommunication services available in different parts of the country including the provinces mentioned above, the ministry has undertaken the plan of purchasing and installation of 24 wireless units. The advertisements to this effect have already been given. In case financial considerations do not constrain our efforts, we plan to install eighteen wireless units in the said border provinces in the current year. Besides, plans are underway to overhaul the existing tropospheric units and provide the stations with technical rooms so that the

operation of the same may become more comfortable to the officers and soldiers. The work is almost complete.

Similarly, we have accorded due recognition to the importance the border provinces of the country command and thus have made sustained efforts to make sure the Radio and Television services in these provinces run without interruption.

It must be mentioned here that the building housing the automatic telephone exchange of the Kandahar city had been destroyed completely in the past years and the ministry of communication of the Republic of Afghanistan despite facing problems and constraints of many kinds succeeded to rehabilitate the building and the telephone exchange. The new boards and other electronic [word illegible] required for the system have been specified and shall be purchased and installed in due time.

The Ministry of Communications is not purely a productive institution, rather, it also offers certain socio-economic services including the telecommunication ones all of which call for adequate funds. The turnout of the ministry through the telecommunication, postal and Radio-TV services is, however, not sufficient to meet these ends. Therefore, telecommunication services in the country are directly influenced by economic growth and investments in the sphere of communications in every region.

No doubt, with the restoration of peace and security in the country, practical steps shall be taken towards realisation of the said objectives including diversification and improvement of the telecommunication services in the country.

BANGLADESH

Plans To Replace Analog Telephone Links Told

92WT0125A Dhaka THE NEW NATION in English 25 Jan 92 p 3

[Unattributed article: "No Analogue Phone Link Henceforth"]

[Text] Telephone exchanges in all towns including capital Dhaka, Chaittagong, Khulna and Rajshani will be converted into digital exchanges by the turn of the century, reports BSS.

Minister for Posts and Telecommunication M. Keramat Ali while replying to a question from Mojahar Hossain (CPB-Panchagar), said the changes would be done in phases. The Minister made it clear that there was no plan to give new analogue telephone connections in Dhaka.

The T and T Minister said all the district headquarters have been brought under Nationwide Direct Dialing (NWD) system in replying to a question from Mr. Ebadur Rahman Chowdhury (JP-Miulvibazar), Mr. Ali said there was no plan to bring upazilas under NWD.

The Minister, however, noted that four upazilas (Saidpur, Iswardi, Mongla and Savar) were now under NWD.

He said there are no digital telephones outside Khaka at present.

Mr. Keramat Ali answering a question from Dr. Mozammel Haq (Al-Bagerhat) said because of agreements with 3 private companies during the previous regime, the government now had no plan to bring upazilas under NWD.

To another question from Prof. Rafiqul Islam (Al-Jessore), the Minister, digital telephone exchanges will be set up in 203 upazilas by 1994 under an agreement signed with Bangladesh Rural Telecom Authority (PTE) Ltd.

The T and T Minister said the government planned to set up new telephone exchanges in the country.

More Television Relay Centers Planned

92WT0124A Dhaka THE BANGLADESH OBSERVER in English 27 Jan 92 pp 1, 10

[Unattributed article: "4 More TV Relay Centres To Be Set Up"]

[Text] The government has taken up necessary steps to expand the country's television network by setting up four more television relay stations, reports BSS.

This was informed at the on Sunday third meeting of the Standing Committee on Information Ministry on Sunday with Information Minister Barrister Nazmul Huda in the chair.

The meeting was told that the nine television relay centres were now covering 70 per cent area of the country and 15 per cent television coverage would be increased after the completion of four new stations.

It also said various development projects were now underway for modernising the radio and television.

The meeting was further informed that the government had already taken up effective measures to set up second transmission centre at Chittagong.

The Information Minister told the meeting that more opportunities would be created for wider participation of creative and talented artists in radio and television programmes.

He said news of the Opposition were also being transmitted and broadcast in radio and television side by side with the Government news.

Mr. Huda said a television programme named "mukhamukhi" had been arranged to reflect the views and thinking of the ruling party and the Opposition on different national issues.

Proposals would be made in the coming Budget for appointing four reporters in television, he added.

The meeting decided to take steps for broadcasting such programmes which would reflect our national history and identity.

Parliament Members Barrister Ziaur Rahman Khan, Mahiuddin Ahmed, A.T.M. Wali Ashraf, Abul Kalam Azad, Golam Rabbani, Begum K.G. Hmida Khanam and Mufti Moualana Abdus Sattar attending the meeting.

Information Secretary Nuruddin Al Masud and high officials of Radio Bangladesh and Bangladesh Television were also present.

Telecom Network Still Backward in Southern Districts

92WT0123A Dhaka THE NEW NATION in English 28 Jan 92 p 12

[Article by Abul Hasan: "Telecommunication Network Still Backward in Southern Districts"]

[Text] Patuakhali, Jan 27: The Tele-communication Network in the southern districts have yet been groaning under utter neglect and was lagging far behind in modern technology.

The telephone exchanges in the district headquarters have not yet been converted to auto-system. Barisal-Khulna channel of micro-wave was still being run under analogue system and was yet to be converted to digital system.

In the Bhola-Borguna, Pirojpur and Jhalakati exchanges, connected with Barisal micro-wave channel, circuits have been increased despite high demands for the same.

In 40 upazilas of the southern districts, UHF link has been established but the subscribers could have gotten the benefit of NWD or STD system in case auto-exchanges were established. In absence of the same, the subscribers have to depend on "trunk calls" alone for which they have to wait for hours. These exchanges are now running under magnetic or CB (Central Battery) system.

Auto-exchanges have, however, been set up in Baufal and Bhandaria upazilas.

The Monpura exchange, which was being run under solar system, has, however, been destroyed by the April cyclone of 1991. It needs to be re-established promptly.

In Baufal, Khepupara, Hizla, Muladi and Mehendiganj, wireless PC system is still continuing. At 16 places in the region, exchanges are run with motors, an extreme trouble though the system is. In case of any fault or defect, technicians are brought from Dhaka for repair and the hazards faced by the subscribers can, therefore, be easily imagined. Top priority should be given to the problems of these exchanges. The 700-line Patuakhali exchange has been raised to a 1300-line exchange, 400-line Jhalakati Exchange to 1000 lines, 700-line Bhola Exchange to 1000 lines, 400-line Barguna Exchange to 1400 lines and 400-line Pirojpur Exchange to 800 lines.

In Barisal, there is at present a 2200-line Exchange and another Exchange with a capacity of 1000 lines in a necessity there.

Before, the authorities of every Exchange, hundreds of applications for installation of new telephones were pending, it is learnt. Even applications submitted in 1989 were still pending, it is alleged.

It is alleged that without recommendations from the chairman of the T&T Board, no set is installed but few can reach there as a result. About 700 applications before the Barisal Exchange were lying untouched for years.

No coin-box Telephone has been set up anywhere in the southern zone. Several coin-box telephone sets were, however, sent to Barisal when Mr. Mizanur Rahman Chowdhury was the minister for communication (T&T inclusive) but those were considered technically ineffective for this zone and hence were returned back.

The Revenue office of the T&T Department at Barisal is still a Divisional office but, many feel this office should be upgraded into a unit office of the Revenue Section of the T&T Department since 11 district-level Revenue offices are under the Barisal office. Number of the staff is inadequate to cope with thousands of subscribers. Hence, they are over-worked and can hardly supply Telephone Bills in time.

In the coastal islands of southern zone, still mostly lying dislinked with the mainland, there is no telecommunication network as yet. But considering their helplessness, they should immediately be brought under the communication facilities.

EGYPT

Al-Sharif on Satellite Channel

NC2203075292 Cairo Arab Republic of Egypt Radio Network in Arabic 2100 GMT 21 Mar 92

[Excerpt] The National Democratic Party [NDP] Political Club held an expanded meeting tonight. It was attended by Consultative Council Speaker Dr. Mustafa Kamal Hilmi; Dr. Yusuf Wali, NDP secretary general, deputy prime minister and agriculture minister; Information Minister Safwat al-Sharif; Kamal al-Shadhili, assistant NDP secretary general and secretary of the Organization Department, and the ministers of education, works, and water resources.

Minister al-Sharif said that a higher committee of experts and media specialists from Egypt and some Arab countries has been formed to redraw the plans for the satellite television channel to make it different from the

other television channels by developing its news programs and dispatching correspondents abroad to supply it with news and information.

He added that this channel will be introduced into Sudan and Libya within the coming few days. He also said that the television advertisements do not have only commercial purposes, but also other social and economic purposes that serve other fields, such as child development, culture, and combatting drugs. [passage omitted]

INDIA

Insat-2A Launch Postponed Until Jun 1992

92WT0121A New Delhi PATRIOT in English 4 Feb 92 p 5

[Unattributed article: "INSAT-2A Launch Put Off to June"]

[Text] Bangalore, Feb 3 (UNI)—The launch of India's indigenously built multipurpose satellite INSAT-2A has been rescheduled for June, Indian Space Research Organisation (ISRO) chairman U.R. Rao said today.

Talking to newspersons at the ISRO's Telemetry Tracking and Command Network (ISTRAC) station here, Mr. Rao said INSAT-2A would be launched in June and not in March as originally scheduled.

He attributed the three-month delay to rescheduling of the flights of the Arianespace's launch vehicles.

He said the ISRO had booked flight 51 of the Ariane launch vehicle for INSAT-2A, and the lift-off was slated for March-end. However, Arianespace had postponed flight 49 by a month for commercial reasons. This, in turn, had led to delay of the subsequent flights.

The ISRO sources, however, said the delay in the launch would in no way affect the country's communication and television network as the INSAT-1D launched in 1990 still had a life span of more than four years.

Prof. Rao said Arianespace President C. Bigot and other executives were here last week to explain the reasons for delay in the launch.

He said the satellite was kept ready in ISRO's satellite centre here after due completion of various tests.

IRAN

German Firm To Establish Telephone Center in Tehran

92AS0481Z Tehran ABRAR in Persian 24 Dec 91 p 2 11

[Text] The German company, Standard Electric Lawrence, S.E.L., will build a 60,000-line telephone center in Tehran.

Earlier, this company installed a 30,000-line telephone center for the communication company in Tehran. With the implementation of the above-mentioned project, this telephone center will also expand.

According to S.E.L., the 10,000-line communications center operates at high capacity. Only a few producers can provide such centers.

This report also indicates: The S.E.L., which belongs to (Elkatel) of France, received orders for 34 urban and long-distance telephone centers in Iran, which will operate with 450,000 telephone lines.

This company has built a factory in Shiraz to supply some of the technological needs of this center, which offers the domestic products for use in that center.

Azerbaijan Establishes Direct Telephone Links

LD1603090992 Tehran Voice of the Islamic Republic of Iran First Program Network in Persian 1030 GMT 15 Mar 92

[Text] Direct telephone links between West Azerbaijan and the autonomous republic of Nakhichevan were established today. The agreement was reached during the recent visit of a delegation from West Azerbaijan to Nakhichevan.

According to an IRNA report the necessary equipment will be installed in the near future to facilitate further expansion of the telephone links between West Azerbaijan and Nakhichevan. Earlier telephone links with the Republic of Nakhichevan were only possible via the Iranian province of East Azerbaijan.

New Microwave Link Planned to Azerbaijan

LD0203223192 Tehran IRNA in English 1340 GMT 2 Mar 92

[Text] Baku, March 2, IRNA—Iranian Minister of Post, Telephone and Telegraph [PTT], Mohammad Gharazi, arrived in the capital of the Republic of Azerbaijan, Monday, at the head of a delegation.

"The aim of our visit is to expand postal and telecommunications relations between Tehran and Baku well as to open a new international microwave line between the two countries," said PTT deputy minister for international affairs 'Ali Sarraf who is part of the delegation.

Sarraf said the two countries are already linked by 13 telephone channels via operator, but with the opening of the new microwave line the number of channels will increase to 300, of which, initially, 60 channels will provide direct international links.

Direct Telephone Links Khorasan to Outside World

92AS0765K Tehran RESALAT in Persian 6 Feb 92 p 5

[Article by unidentified IRNA correspondent]

[Text] Tehran—With the addition of six international telephone channels to the existing Khorasan Province communications channels, henceforth the people of this province will be able to make direct telephone connections from the city of Mashhad to foreign countries.

The Ministry of Post, Telegraph, and Telephone announced: Before these channels were added to the international telephone channels, these connections were made through Tehran.

These channels were designed and implemented by engineers and communications specialists in Khorasan Province. The rates for foreign telephone calls for the people of this province have decreased and the sound quality and speed of connections have improved.

Satellite Communications Established With Kuwait

92AS0770B Tehran SALAM in Persian 7 Mar 92 p 3

[Text] For the first time since the liberation of Kuwait, direct satellite communications were established between Iran and Kuwait, with a primary capacity of 30 circuits, and became operational.

Qazi Torbati, the deputy director of operations and upkeep for Iranian satellite affairs, made this announcement and added: Following talks between the Iranian communications officials and Kuwait, direct communications have been established between the Islamic Republic of Iran and Kuwait since last Monday.

This report, quoted from the Iranian Embassy in Kuwait, also indicates that direct communications, with a capacity of 30 circuits, have become operational and can be increased up to 100 circuits. The two countries have now the capability to establish direct communications with each other.

Operational Satellite TV Stations Total 25

LD0603085592 Tehran Voice of the Islamic Republic of Iran First Program Network in Persian 1030 GMT 5 Mar 92

[Text] Twenty-five satellite television stations have become operational in various parts of the country, and a large section of the country's rural regions have come under the cover of the first program of the Vision of the Islamic Republic. These satellite television stations have been set up and have started operating in the provinces of East Azarbayjan, Esfahan, Hamadan, Fars, Mazendaran, Gilan, Yazd, and the Central Province.

Authorities Commission 31 Satellite Transmitter Stations

LD1903123292 Tehran IRIB Television First Program Network in Persian 1530 GMT 18 Mar 92

[All figures as heard]

[Text] A total of 31 satellite television transmitter stations have been commissioned nationwide, including: seven stations in Tehran, Zanjan, and Markazi Provinces; three in Ilam Province; two each in Kerman and Sistan va Baluchestan Provinces; one each in western Azarbayjan, Khorasan, Kordestan, and Mazandaran Provinces; and in Esfahan, Bakhtaran, and Fars. The commissioning of the transmitter stations, carried out by experts from the television and FM transmitter unit and operational and coordination headquarters for the Voice and Vision of the Islamic Republic of Iran's ground satellite stations, meant that a vast sector of the country's rural areas were integrated into the Islamic Republic of Iran's first television network.

Semnan Commissions First Satellite TV Receiving Station

LD1203234292 Tehran IRIB Television First Program Network in Persian 1245 GMT 12 Mar 92

[Summary] Semnan's first satellite television receiving station was commissioned by the governor general. The receiver, which receives Tehran IRIB Television First Program Network and Tehran IRIB Television Second Program Network programs directly, was installed by the Tehran regional television transmitter repair and maintenance unit.

Telecommunications To Be Improved by 6 Satellites

LD0103182292 Tehran IRNA in English 1739 GMT 29 Feb 92

[Text] Hamedan, Feb. 29, IRNA—The Telecommunications Company of Iran is to erect six ground satellites which will cover between 10 to 50 points around the country, according to the Post, Telegraph and Telephone Minister, Mohammad Gharazi.

They are to be installed in the provinces of Hormozgan, Bushehr, Kerman, Khorasan, Kurdestan and Isfahan.

One satellite station in Sistan-Baluchistan which covers almost ten points in the remote areas of that southeastern province is now operational.

Since the triumph of the Islamic revolution in Iran (Feb 1979), Gharazi said, 5,000 villages have been provided telecommunication facilities against only 300 before the revolution.

Satellite TV Ground Station Operational in Bastak

LD2203230492 Tehran Voice of the Islamic Republic of Iran First Program Network in Persian 1630 GMT 22 Mar 92

[Text] The Anuh satellite television ground station in the Bastak District has been made operational thanks to the efforts of the staff at the television transmission and installation units of the Persian Gulf Center of the Voice

and Vision of the Islamic Republic of Iran. According to a Central News Unit report, with the commissioning of this station, the inhabitants of Anuh, Bisad, and Faryab villages in the Bastak District will be able to receive the programs of the first network of the Vision of the Islamic Repbulic of Iran on Channel Two.

TV Comes to Ilam Province Via 2 Satellite Stations

LD1903121992 Tehran Voice of the Islamic Republic of Iran First Program Network in Persian 1030 GMT 18 Mar 92

[Excerpts] A total of 7,000 more Ilam Province residents will be able to receive Vision of the Islamic Republic of Iran Channel One programming with the installation of two satellite television stations in the Province's rural areas, each station having a power of 5W. [passage omitted]

With these two stations becoming functional, residents of Zarrineh and Sartang, in Eyvan District, can receive Vision of the Islamic Republic of Iran Channel One programming clearly on channels five and seven.

New Satellite Receiver, Transmitter Operational

LD1103115992 Tehran Voice of the Islamic Republic of Iran First Program Network in Persian 0730 GMT 11 Mar 92

[Excerpt] The ground receiver and 5-watt transmitter satellite station of the Bovanat region in the province of Fars has become operational. According to the Central News Unit, with the opening of this station and its television transmitter, the inhabitants of the villages of Asemi, Morshed, Qadamgah, and Akbar in the Bovanat district of Abadeh township can now receive the programs of the Vision of the Islamic Republic's Network One. [passage omitted]

PAKISTAN

Overseas Telecommunications Linked to Satellite

92WT0132A Karachi DAWN in English 15 Feb 92 p 3

[Unattributed article: "Telecom Linked With Intelsat-VI"]

[Text] Karachi, Feb. 14: All the overseas telecommunications have now been established through a new and advanced series of satellite, called Intelsat-VI which has been recently launched by the International Telecommunication Satellite Organisation, Washington.

The new system has replaced the older Intelsat-V Satellite at 60 degrees East Longitude in the Indian Ocean region.

In order to transfer services to this new satellite from Deh Mandro East Station, near Karachi, Pakistan had to interrupt services on Saturday between 0100 up to 0300 hours PST.

This interruption has been necessitated in order to undertake technical modification for accomplishing transfer to the new satellite.

The international telecomm, services will, however, be through alternate route provided through International Gateway Exchange at Islamabad and Malachh earth station near the capital over the Intelsat satellite located 63 degrees East longitude.

Digital Communications System Inaugurated

92WT0131A Lahore THE PAKISTAN TIMES in English 18 Feb 92 p 8

[Unattributed article: "Pakistan Enters Era of Digital Communication"]

[Text] Islamabad, Feb. 17: Pakistan has entered the era of digital communication technology with the commissioning of IDR (Intermediate Data Rate).

This link based on latest communication system will provide high quality telecommunication transmission circuits, initially between Pakistan and Japan.

Pakistan Telecommunication Corporation has installed the first digital transmission system through Malachh Satellite Earth Station near Islamabad.

The link was commissioned on Feb. 13. The telephone traffic will be handled directly through the International Gateway Exchange Islamabad.

PTC has planned to install and commission this system for other destinations of the world as well.

With the introduction of this new system at Islamabad, the telephone traffic between Pakistan and Japan will be handled more effectively providing improved service to its subscribers both in Pakistan and abroad.

Until now calls between the two countries were being routed through International Gateway Exchange, Karachi, says a Press release of PTC.

SUDAN

SUNA To Modernize; New Schedule Announced

EA0803204592 Khartoum SUNA in English 1640 GMT 8 Mar 92

[Text] Khartoum, 8 Mar (SUNA)—The Sudan News Agency, SUNA, will in the next few days venture into a new stage of modernization by taking tremendous technological leap of introducing the computer system for publishing its bulletins.

SUNA General Manager Tayyib Mustafa added that the times of appearance of the bulletins would change accordingly. The Arabic bulletin will be ready for distribution at 6:00 p.m. and its supplement will be published at 6:00 a.m. There will be two English language bulletins instead of the present single one who is issued at midnight. According to the new system, Mustafa said, the English daily bulletin will be issued at 6:00 p.m and its supplement (which never existed before) at 6:00 a.m.

The general manager says the changes will enable SUNA to render new service [as received] indispensable for decisionmakers as well as mass media and other authorities to follow up domestic and international developments.

The English and Arabic supplements, which will be distributed at 6 o'clock each morning, will contain full coverage of all international events overnight.

International Broadcasting Mooted for Commonwealth

PM1303145592 Moscow KOMSOMOLSKAYA PRAVDA in Russian 12 Mar 92 p 2

[Article by D. Babich: "One TV Service for All"]

[Text] On television recently they announced the results of a poll on the question: Do you want to watch the programs of the former Central Television, which is now the "Ostankino" Russian Television and Radio Broadcasting Company? Over 80 percent replied that they do. So what is it all about? As I was told at the company's technical administration, it is about the "simple" matter of 6 billion [currency not specified]. This is the amount the Russian Television and Radio Company must pay a year to the communications ministries for relaying its programs across the whole territory of the former USSR.

According to the figures of the company's economic administration, 73 percent of that money goes on relaying programs to Russian territory alone. Consequently the remaining republics of the former USSR account for about 2 billion of the total cost. The Russian Federation agreed to guarantee transmission on its territory. The remaining republics must announce their decision as soon as possible—the first quarter, the period in which Russia agreed to pay for everyone—ends 1 April.

As Valentin Khlebnikov, deputy chief of the Russian Television and Radio Company's technical administration, told us, it is absolutely necessary now that the republics pay at least for the relay operation. Communications workers in Ukraine and Kazakhstan have already agreed in principle, but decisions of this scale are ultimately adopted only by presidents.

Two days ago there were talks between Yegor Yakovlev, general director of the Ostankino Television and Radio Company, and Kazakh President Nazarbayev. As Seytkazy Matayev, the president's press secretary, told us, a "gentleman's"—verbal—agreement has been reached that Kazakhstan will become a "shareholder" in the future International Broadcasting Company and will propose its creation at the meeting of CIS heads of state in Kiev 20 March.

Skirmantas Valjulis, general director of the Lithuanian radio and television service, reported that under the agreement reached with the Russian Television and Radio Company, Channel One's broadcasts will be received in the republic until 1 July. Transmissions of the former Central Television are becoming increasingly popular in Lithuania: On 14 March, for instance, there will be a Russia-Lithuania television link in which Landsbergis, chairman of the Lithuanian parliament, will take part. If necessary the republic's television service is ready to bear the costs of relaying—because of the republic's small size that will be 13 million. According to Mr. Valjulis' information, the other Baltic republics have made a similar decision.

Other republics are in no hurry to make a decision at present. The fate of Channel One will depend primarily on the position of the Ukrainian and Belarussian presidents. Central Television is hoping that the presidents will not sacrifice viewers' interests to political ambitions.

According to Dmitriy Golovanov, adviser to the general director, Russian Television and Radio Company expert Konstantin Borovoy has suggested another way out of this situation—to involve commercial structures in financing the company. But who in present conditions will take that risk? Realistically, in Golovanov's words, the company may be valued at $15 billion at least. Now the company is trying to drop the "Russian" element from its title. It wants to become an international radio company and will do so, according to Dmitriy Golovanov, even if only three republics become party to the agreement. Furthermore, the leadership is counting on Russia, Belarus, (in a recent interview Shushkevich said that conditionally he is prepared to support the idea of an international Television and Radio Company), and Kazakhstan. An observers' council will monitor the observance in the programs of the interests of all the republics.

Philips Presents Commonwealth Projects

92WS0269L Chichester INTERNATIONAL TELECOMMUNICATIONS INTELLIGENCE in English 9 Dec 91 p 4

[Unattributed article: "Philips Outlines Soviet Activities"]

[Text] Philips' German subsidiary recently attended the Energy Communication and Automation '91 trade fair in Moscow where it demonstrated equipment it is currently using in projects in the Soviet Union.

In cooperation with the Central Research Institute for Telecommunications in Moscow (ZNIIS), Philips is developing the long-haul communication system LS34S/OF. This transmission system for balanced copper and fibre optic cable enables digital signals of the third hierarchy level to be transmitted in accordance with CCITT [International Telegraph and Telephone Consultative Committee] recommendations. The new system is a further development of the PCM480S system which has been supplied by Philips manufacturing plant in Bautzen to the Soviet Union where it is being installed to modernise and extend transmission links in the long-haul networks.

Philips also demonstrated TSS, the telecommunications switching system for the transmission of voice, data, text and pictures. Designed and manufactured by Philips, the modular switching system is a flexible concept for narrowband and broadband applications. The central elements of the system are the ISDN [Integrated Services Digital Network], H1 and H4 switches which enable non-blocking switching of the narrowband and broadband channels.

This design means that the system can be used in a broad field of applications ranging from concentrators with 128 ISDN subscribers, to the local exchange with more than 28,000 ISDN subscriber circuits, up to the trunk exchange with over 5,000 trunk circuits.

For the project in Mozhaisk, situated approximately 150 km west of Moscow, the standard switching system model is being used. ISDN technology is still subject to Cocom export restrictions.

New Director Named for State Radio, TV Company

NC0803212892 Baku Radio Baku Network in Azeri 1800 GMT 8 Mar 92

[Text] In accordance with the president's decree, Ershad Kuliyev has been appointed director of the Azerbaijan State Company for Television and Radio Broadcasting, and Mamed Muradov has been relieved of his responsibilities as director of the Azerbaijan State Company for Television and Radio Broadcasting due to another appointment.

REGIONAL AFFAIRS

Joint-Venture Digital Switchboard Plant Opens

92WS0309B Budapest FIGYELO in Hungarian 12 Dec 91 p 5

[Unattributed article: "Assembly of Digital Telephone Switchboards"]

[Text] AHT Hiradastechnikai Kft. [AHT Communications Engineering Ltd.] has begun assembly of the Alcatel digital telephone subexchanges. This joint venture of Alcatel Austria and the Hiradastechnika Joint Stock Company conducts manufacturing activity and commercial, technical, installation and maintenance activity, about half and half, at its site that is about 1,000 square meters in size. The owners have invested more than 30 million forints thus far in the tool inventory and in training the technical staff.

The Hungarian Hiradastechnika Joint Stock Company and one of the largest firms in the world manufacturing business communications systems created AHT Hiradastechnikai Kft. last year. They have already doubled the initial base capital, although the Hungarian partner did not take part in this. It does have an option to do so, however, up to March of next year. After that option runs out Alcatel Austria will continue to be the majority owner of the enterprise with 53 percent.

In 1991 AHT did more business than planned—300 million forints' worth. The orders received for 1992 promise further growth. This will make realistic the idea that AHT will have about a 25-percent share in the Hungarian market for business communications.

SGS-Thomson's HDTV Circuits Described

92AN0124A Paris ELECTRONIQUE INTERNATIONAL HEBDO in French 28 Nov 91 p 28

[Article by Elisabeth Feder: "SGS-Thomson Enters High-Definition Television Market"]

[Text] With a set of four circuits for decoding D2-MAC [Definition 2 Multiplexed Analog Component] signals, SGS-Thomson considers that it can provide the optimum long-term solution.

A 0.8-micron CMOS [complementary metal-oxide semiconductor] technology for consumer circuits, a single 5-volt power supply, and a total consumption of less than two watts: These are the main features of a set of four integrated circuits which SGS-Thomson will be offering for decoding D2-MAC signals. To highlight its arrival on the enhanced television market, the company preferred indeed to optimize the different functions separately in order to attain high-level quality. For example, by developing a specific analog-to-digital converter for the baseband MAC input in order to guarantee a "pure" signal. Three additional integrated circuits, designated STV-3810, STV-3820, and STV-3830, ensure MAC signal acquisition, video processing, and sound and data processing, respectively. The complete separation of audio and video parts should allow an easy transition to the HD-MAC [High-Definition Multiplexed Analog Component] high-definition television [HDTV] standard of the future. Indeed, only two of the four integrated circuits require minor modifications to achieve a HD-MAC-based decoder for the function of restoring the passband.

The STV-3800 analog-to-digital converter is a real 8-bit converter that contains a gain control circuit and a local oscillator. Its characteristics are an alignment control of approximately 1 LSB [expansion not provided] and an amplitude control of approximately 0.3 decibel, a signal-to-noise ratio of approximately 40 decibels for a 9-megahertz frequency response, and an harmonic distortion of less than 50 decibels. The passband available for the signal is thus fully conserved, guaranteeing excellent quality for the signal sent to the video processor.

The MAC acquisition circuit, designated STV-3810, ensures the functions of recovering the clock and synchronization signals as well as restoring the white or black reference levels, this information being transmitted on line 624. It also controls the MAC signal's amplitude and gain.

Video processing, on the one hand, and sound and data processing, on the other, are fully ensured by two dedicated components. The STV-3820 video processor contains a memory for decompressing the luminance and chrominance signals, as well as a digital filter followed by a D/A converter for a good restitution of the RGB [red-green-blue] signals at the output. This component also handles the conversion to the wide 16/9 format, as well as the decoding of the video part. The coding/decoding method chosen comprises two cutoff points, one in the luminance and the other in the chrominance section; the two sections are then inverted in time sequence for transmission. The coding cutoff points vary on all lines according to a random-sequence generator and the decoder must restore the incoming signals, after reception of the appropriate data transmitted on line 625. The set of circuits implemented in a D2-MAC decoder, particularly at the level of the video processor outputs, can be completed in order to handle RGB or composite video signal outputs.

Another particular feature of the D2-MAC standard is its potential for transmitting up to four compact-disc quality sound tracks, or eight lower-quality tracks (for commentaries or data). The STV-3830 fully digital sound processor handles up to four mono tracks or two stereo tracks. It integrates a special filter to ensure oversampling of the commentary tracks with significant noise suppression and attenuation exceeding 60 decibels, outside the useful band. Mixing the main sound with the commentary tracks is possible at the output, without deterioration at the performance level. In teletext mode, the STV-3830 decodes packets transmitted during the frame return interval by the STV-3810.

Production To Begin in Mid-1992

The circuit prototypes currently available have been made in 1.2-micron CMOS technology except the analog-to-digital converter, for which SGS-Thomson chose its bipolar CMOS (B/CMOS) technology. The circuits' total consumption could thus be reduced to less than two watts, including 600 milliwatts for the converter. A new version of CMOS components with 0.8-micron structures is being finalized and production is slated to start by mid-1992. In a world market for approximately 500,000 decoders, including external "black boxes" as well as built-in decoders in television sets, SGS-Thomson is aiming at sales of several tens of thousands as of the first year. In order to be competitive, the company plans to fall into line with the prices of competing solutions, notably those of ITT and soon Philips. A complete decoder is already available for the evaluation of the set of circuits.

EC Abandons HDTV Rule on Satellite TV

92WS0352N Chichester INTERNATIONAL TELECOMMUNICATIONS INTELLIGENCE in English 13 Jan 92 p 3

[Text] Meeting in Brussels, European Community telecommunications ministers abandoned efforts to impose an early and controversial new high-definition broadcasting standard for satellite television, agreeing instead on a much-reduced version of a directive proposed nine months ago by EC Technology Commissioner Filippo Maria Pandolfi.

The decision is seen as a defeat for France and the EC Commission, which wanted to conduct an active industrial policy to promote the development of HDTV [high-definition television] in Europe enforced by mandatory EC standards.

Under the finally-accepted, but significantly altered, Pandolfi directive, the controversial D2-MAC [Definition 2 Multiplexed Analog Component] standard must be used for all new satellite-TV services in the extra-wide, 16/9 ratio format, as of 1995. However, as a result of eleventh-hour negotiations, existing TV channels will not be required to switch over to D2-MAC.

The new directive also offers opportunities for future broadcasts using all-digital technology of the type being developed by U.S. electronics companies.

To combat U.S. and Japanese competition in the sector, the agreement sets out compulsory transmission standards to be used for new satellite television services after 1 January 1995.

EC ministers will now try to promote the development of D2-MAC broadcasts in the 16/9 format. The Commission is also to make proposals to subsidise any broadcasters willing to use D2-MAC.

While it is still possible that the EC could subsidise D2-MAC adoption and development, it was made clear by ministers that direct references to EC financial support for D2-MAC transmissions are to be removed from the final directive.

It is believed that several broadcasters have expressed interest, including BSkyB in the UK; Canal-plus, TF-1 and A-2 in France; and the Filmnet unit of Switzerland's Cie. Financiere Richemont.

As much as ECU1 billion could be earmarked to subsidise D2-MAC broadcasts, according to Filippo Pandolfi. But this will now be dealt with in a separate directive as it would require the unanimous approval of all 12 EC governments.

Finally, EC ministers agreed that the D2-MAC directive would expire at the end of 1998, in view of the rapid pace of development of the technology. During this time, it agreed to track technological developments and propose new policies, including the development of digital HDTV technology, if necessary.

In order to finalise this latest agreement, all that remains is for a legally-binding strategy document to be signed by broadcasters and manufacturers.

Among those likely to be disappointed by this latest decision are Thomson SA of France and Phillips Electronics NV of the Netherlands—both have invested heavily in D2-MAC, and have recently launched expensive TV sets based on the technology. The two companies are, however, participating in the development in the U.S. of a purely-digital HDTV set which could form the basis for a U.S. standard. HD-MAC [High-Definition Multiplexed Analog Component] is an essentially analogue HDTV technology (see Americas section this issue).

EC Council Adopts D2-MAC Directive

92MI0192X Bonn DIE WELT in German 23 Dec 91 p 12

[Text] "A breakthrough"—or, alternatively, "a corpse overdue for burial"—such are the differing reactions to the decision over the future of European high-definition television (HDTV). The EC's Council of Ministers has passed a directive that adheres to the D2-MAC [Definition 2 Multiplexed Analog Component] European interim standard, enabling consumers to make a gradual transition to cinema-quality television. The main supporter of the D2-MAC standard is the European entertainment electronics industry, fearful for its own domestic market, as its Japanese competitors are going ahead with their own HDTV standard.

Media policymakers in the German cabinet criticize the EC's decision as protectionism and, as such, against the interests of consumers, even if the Brussels plans have been considerably toned own. CDU [Christian Democratic Union] Deputy Joseph-Theodor Blank feels it is economic nonsense to require satellite operators and

program makers to invest heavily in a technology providing only slight improvement in picture and sound quality, and which will soon be obsolete, with the result that consumers who equip their sets specifically for D2-MAC will then have to purchase new equipment to receive HDTV transmissions in HDTV quality. Before the EC's decision, Hans-Joachim Otto of the FDP [Free Democratic Party] called for the success or failure of D2-MAC to be decided in the marketplace.

[Federal Telecommunications Minister] Schwarz-Schilling counters that all concerned now had sufficient guarantees to plan ahead, and equipment manufacturers had the opportunity to gain a lead over their competitors. The D2-MAC TV standard and the wide screen format enabled viewers to enjoy higher quality now, he said, rather than waiting until the year 2000; this was the only standard that made it possible to transmit TV programs in 16:9 format. Pal Plus, the development from the Pal system favored by TV companies, would only be available from the mid-90s.

The EC directive requires all new satellite programs to be transmitted in D2-MAC from 1995; until the very last moment, the EC commission also intended to require programs existing before then in conventional standards to be transmitted in D2-MAC as well. Schwarz-Schilling stresses that, as this requiremnt for existing services to be transmitted in D2-MAC has now been removed, "there is no requirement for consumers to buy new equipment."

Brussels had previously made a concession in another area. Originally, a D2-MAC decoder was to be compulsory for all TV sets with a screen diagonal measuring over 52 centimeters that came onto the market after 1993. Consumer groups were not alone in regarding this as an unjustified infringement of the consumers' right to freedom of choice, and the requirement is now to be restricted to 16:9 TV sets, though other sets must be fitted with a socket for a D2-MAC decoder.

At German insistence, the directive lays down no rules on subsidies. Brussels was in favor of an introductory incentive, primarily to assist program makers, to the tune of 2 billion German marks over five years. The coalition meeting hosted by the Federal Chancellor instructed Schwarz-Schilling not to agree to this in any circumstance. The issue is not yet settled, however, and EC Commissioner Filippo Maria Pandolfi is due to present new proposals by the end of April.

EC Commission Approves 8 HDTV Projects

92AN0130A Antwerp DE FINANCIEEL-EKONOMISCHE TIJD in Dutch 23 Nov 91 p 12

[Text] The EC Commission and the Media Investment Club (one of the sections of the EC's Media program) will support eight projects which are to be produced in the European HDTV standard. A total of ECU1 million will be made available for the projects.

In April 1991, the Investment Club launched a call for proposals for new projects called HD Media. Three had already been approved, bringing the total to 11. Current applicants include "L'Affaire Seznec" (a coproduction of TF1 [French first TV channel], GMT Productions, and SFP) and "Amahl and the Night Visitors," a Thames Television production. One of the productions which has been approved, "Le Musee Imaginative," is a Belgian-French coproduction.

The investors have also decided to organize training courses on HDTV for professionals.

Earlier this week, an agreement was reached at the European level between independent producers of productions using the HDTV standard. The Association of Independent Producers of High-Definition Programs is an association comprising Thames Television (UK), Synergetic Communications (France), Com 4 (Spain), RTI (Italy), and Unitel (Denmark). European Media Commissioner Dondelinger has already recognized the organization as a party to be consulted. The association also requested the opportunity to participate in the Memorandum of Understanding [MOU] which is being prepared. This MOU aims at harmonizing the needs of HDTV software and hardware manufacturers and is still being negotiated.

EC Reaches Agreement on HDTV Standard D2-MAC

92WS0269C Brussels EUROPE in English 16-17 Dec 91 pp 7-8

[Unattributed article: "EC/Telecommunications: Council Reaches Agreement on HDTV, Adding Flexibility to the Draft Directive Aimed at Introducing the D2-MAC and HD-MAC Standards"]

[Text] Brussels, 19 Dec (AGENCE EUROPE)—After a night and morning of negotiations, the President of the Telecommunications Council, Dutch Minister Mrs. Hanja Maij-Weggen, accompanied by French Minister Mr. Jean-Marie Rausch, German Minister Mr. Christian Schwartz-Schilling, Commission Vice President Pandolfi and Commissioner Dondelinger, welcomed the agreement which will make the D2-MAC [Definition 2 Multiplexed Analog Component] standard compulsory for satellite broadcasts and will enable the introduction of the HD-MAC [High-Definition Multiplexed Analog Component] standard for high-definition television. "In the meantime, we have called on the Commission to pursue a dialogue with industry in order to finalize the financial implications of this directive," she added.

Vice President Pandolfi commented that "in spite of the problems and a natural plurality of interests among member states, a great deal of the work on this file has been completed." With regard to its financial aspects the Commission will conduct a study on the necessary measures. In addition, it will prepare a report every two years enabling decision-making for the duration of the directive.

French Minister Mr. Rausch described the agreement as a "great victory for Europe," with all the delegations clearly supporting the D2-MAC standard. German Minister Mr. Schwartz-Schilling said the Council had just given a clear signal and that "Europe has marked an important milestone," since it was time for clarity to reign among all the partners involved (industry, TV channels, etc.) which had given in to irritation over a long failure.

Commissioner Dondelinger said that: "Eight days after Maastricht, this agreement stresses Community competence in the field of culture".

The main provisions of the directive as modified unanimously by the Council provide for member states taking all the measures facilitating and promoting the introduction and development of advanced television services broadcast by satellite and using the HD-MAC standard for broadcasting partially digital high definition television and the D2-MAC for other partially digital broadcasting in 16:9 format. In particular, it is intended that:

a) The HD-MAC standard alone can be used for all broadcasting of partially digital HDTV [high-definition television];

b) The D2-MAC alone can be used for the broadcasting of all programmes in 16:9 format;

c) The D2-MAC standard has to be used for services launched from 1 January 1995.

Services can also be broadcast simultaneously in PAL [Phase Alternation Line], SECAM [Sequence Electronique Couleur avec Memoire], and D-MAC.

Compared to the Commission's modified proposal, the obligation, after 1 January 1995, for services existing before this date, to be broadcast in D2-MAC alongside PAL, SECAM and D-MAC too, is eliminated. For services coming onto the market after 1 January 1995, the obligation to broadcast in D2-MAC will only take effect after the adoption by the Council of a decision aimed at giving them the support of financial assistance. The Commission will have to submit a proposal with figures next year. The directive, which will come into force six months after its notification, will be applicable until 31 December 1998 (instead of 31 December 1999, as the Commission suggested).

Vice President Pandolfi said that the memorandum of understanding (signed between the economic operators) could soon be approved. He said that Community financing would only benefit the new services.

EC: Mobile Phone Circuits Described

92AN0141A Paris ELECTRONIQUE INTERNATIONAL HEBDO in French 5 Dec 91 p 19

[Article by Didier Girault: "Three Circuits and One Module for GSM Sets as of 1994"]

[Text] Philips Semiconductors is getting ready to launch a set of nine circuits for the all-European digital mobile phone (GSM [Special Mobile Group Standard]), with a much more integrated model being studied.

All-European GSM-based digital mobile telephony should really take off in 1992 and the number of installed sets should reach about 4 million by 1994. Due to the system know-how acquired by the German subsidiary Philips Kommunikations Industrie (PKI), which participated in the development of the GSM standards, and also due to mastery of the latest CMOS [Complementary Metal-Oxide Semiconductor] and BiCMOS [bipolar CMOS] technologies (SaCMOS [self-aligned contact MOS], a low-voltage CMOS process with EEPROM [electrically erasable programmable read-only memory] cells which is twice as dense as the conventional CMOS, and Qubic, state-of-the-art BiCMOS technology with a cutoff frequency of 13 GHz), Philips Semiconductors is getting ready to make its appearance on this market with a set of nine circuits, including two for coding/decoding and signal processing, and six (including one redundant) for the HF reception portion.

This system will include, in particular, a baseband processor which was presented at the Componic '91 show; this circuit will replace the two signal processors that are used in the majority of the current versions of GSM mobile phones. This will decrease power consumption, a key parameter in mobile telephony. The first versions for base stations (PCF 5080) and mobile stations (PCF 5081) are already available in conventional CMOS and will be available in 1-micron SaCMOS as of late next 1992 (according to Philips, this is equivalent to a 0.5-micron CMOS). Peter Baumgartner, president of the Swiss subsidiary Faselec and in charge of integrated telecommunications circuits at Philips, made it clear moreover that the modem section—including the analog/digital and digital/analog conversion unit—will also be integrated on a chip manufactured in SaCMOS. The resultant circuit will be included in the set which should be available by late 1992.

The HF reception portion is the most difficult to integrate. It currently has 10 percent integrated circuits and 90 percent discrete circuits. By the end of 1992, integration will, however, have had its effect; the reception portion should include 40 percent integrated circuits and 60 percent discrete ones. In practice, it will contain the following parts: a SaCMOS synthesizer, a reception circuit (QuBic), a (bipolar) emitter/receiver, a (bipolar) mixer, a logarithmic amplifier, a Prescaler scale changing circuit (QuBic), and a power module.

Philips Semiconductors does not want to be halted along such a good path. The company is therefore continuing its integration work: A complete set with three integrated circuits and a power module should see the light of day by 1994. The baseband processor and the conversion unit (analog/digital and digital/analog) would then be integrated on a single chip made of 1-micron SaCMOS technology and would only require a 3-volt power

supply, which should make it possible to limit consumption. Power consumption of the 16-bit system microcontroller will also be lowered through the utilization of the same technology and an optimized architecture. By then, the receiving unit should only include one integrated circuit and a power module, both implemented in QuBic technology. Only a few filters cannot be integrated in this unit because of the temperature drift they would cause on a chip that includes power elements. But it will be difficult to push integration much further. In fact, according to Peter Baumgartner, it is out of the question to integrate the HF receiving portion with the decoding and signal processing units: "This would not be an economically feasible solution because a QuBic process with 20 masking steps would have to be used to implement the circuit, whereas signal processing and conversion require only 10 to 12 masking steps." The most integrated solution will include two separate modules.

A DECT Set for Late 1992

"The circuits for the 1.8-GHz Digital European Cordless Telephone (DECT) are already in great demand. We are therefore working on the development, by late 1992, of a complete 3-volt kit comprising a codec, a burst-mode controller, and a microcontroller; these components are currently being developed in 2-micron SaCMOS and will be available in 1-micron SaCMOS by late 1992," announced Peter Baumgartner. The key element of the kit, i.e., the direct frequency conversion circuit, is in the final test phase with Philips Semiconductors benefiting in this field from its experience in the development of similar circuits designed for electronic mail services. This circuit will be developed using the QuBic process.

The emitter/receiver portion will always be available in the form of a unit of discrete bipolar components, whereas the "scale changer and synthesizer" solution that was developed for electronic mail systems will be adapted to DECT.

The next generation of DECT sets should include a circuit that integrates all the functions with the exception of the local oscillator and the transmitter. The latter could also be integrated in the main circuit; this would depend on the applications and thus on the required output power.

Cyprus Ready To Renew Air Traffic System Link With Ankara

NC1903073992 Nicosia CYPRUS NEWS AGENCY in English 2012 GMT 18 Mar 92

[Excerpt] Nicosia, Mar 18 (CNA)—"Cyprus is ready to re-establish the air traffic system (ATS) link between Nicosia and Ankara as soon as Turkey is persuaded to do so," Cyprus Communications and Works Minister Renos Savrakis has stated.

He was addressing on Tuesday air transport ministers at the 3rd meeting of European Civil Aviation Conference (ECAC), held in London, focusing on problems caused by air traffic congestion over Europe.

The Ankara-Nicosia direct ATS link was interrupted following the Turkish invasion of Cyprus in 1974.

Stavrakis noted that the link re-establishment was in accordance with the regional air navigation plan.

He added Cyprus was actively involved in a common effort of alleviating air congestion problems and increasing overall airspace capacity to the benefit of European air transport. [passage omitted]

French Official Discusses Europe's Need for Cable, HDTV

92WS0216C Paris LE MONDE in French 11 Dec 91 p 20

[Interview with Andre Rousselet, president of the Canal-Plus channel, by Michel Colonna d'Istria; place and date not given: "Canal-Plus President: 'Europe Needs a Dual Satellite Television System'"—first paragraph is LE MONDE introduction]

[Excerpt] He holds a key position in French radio and television—and, since recently, one of the most beautiful offices in Paris, at the brand new Canal-Plus headquarters overlooking the Seine. In the interview he gave us, Mr. Andre Rousselet, president of the coded channel, approved the European approach of transition to high-definition television [HDTV], explained his strategy concerning cable and satellite television, and outlined his vision of the future of the Havas group, whose president he used to be and whose eminence he remains.

[LE MONDE] What do you think of the European guideline on satellite television currently under discussion.

[Rousselet] I note with pleasure that, in Brussels still more so than in Paris, decision-makers bow to the obvious and cohesion eventually prevails.... The Commission's latest text goes in the right direction, that of the realistic proposals which, together with others, we had recommended to the Commission and in particular to Messrs Pandolfi and Dondelinger.

[LE MONDE] But is it not a failure to postpone to 1995 the obligation to broadcast according to the new MAC [Multiplexed Analog Component] standards?

[Rousselet] Not at all! At Canal Plus, we believe in D2-MAC [Definition 2 Multiplexed Analog Component], a standard that will make possible the advent of European high-definition television which, in turn, will unquestionably make a difference. We are also convinced that, in years to come, the new 16/9 large screen format will "pull" the D2-MAC systems, certainly not the contrary. Because although D2-MAC is promising, how could today's average consumer be fully aware of it? We must therefore offer him a "plus" that is immediately tangible, and it is the 16/9 format that will sell

tomorrow's TV sets today. To the manufacturers who think that D2-MAC is an end in itself, I say: First believe in your products if you want to succeed in selling them! Rely more on the qualities of these products than on regulatory constraints, and implement a daring policy of "promotion" prices to impose them on the market.

[LE MONDE] But then, why not offer the 16/9 right away, and why did you change your position recently, when you suggested that Telecom 2 should broadcast its future bouquet of theme channels in SECAM [Sequential Color and Memory] format?

[Rousselet] Neither large-screen TV sets (1,000 of which or less have been sold in France to date!) nor copyrights on films made in 16/9 format are readily available. By 1995, we shall have to step up our efforts to promote broadcasting and production in 16/9 format. It is for this, among other things, that the financial means of the EEC should be used. We shall probably have to set up a fund to aid production in D2-MAC 16/9 format, and manufacturers would be well advised to imitate their Japanese counterparts and contribute to such a fund. And that would be only fair. Aren't they the ones, and the only ones, who will benefit from the new standards?

To impose the D2-MAC 16/9 broadcasting format as soon as possible, and before this standard imposes itself on the public in 1995, we shall have to launch new satellites and make the necessary channels available free of charge to volunteer broadcasters, who will in turn pay part of the programming costs. This will probably be the essential financial decision made in Brussels, to complement its guideline. Thus, it will be possible to launch pre-Europesat in 1994, then Europesat in 1996, to provide continuity with TDF1/TDF2, Marco Polo, or Olympus, these showcases of the new standards, which are still too delicate for broadcasters to ensure their promotion today.

Thus, as early as 1995, at least four channels—Canal Plus, Cine-Cinemas, Cine-Cinefil, and also the German coded channel Premiere—will broadcast a majority of programs in 16/9 to over 350,000 subscribers, or even more. By then, these 16/9 channels, and many others, if subsidies give them easier access to satellites, will have raised the public's expectations to such an extent that the obligation imposed by Brussels upon other channels, to convert to simultaneous broadcasting according to the old and the new standards will look like the obvious thing to do. It will then no longer be necessary to force the consumer; he will spontaneously demand a screen complying with the new standards.

Simultaneously, a second series of satellites will acquaint consumers with reception through individual or collective parabolic dishes, and will enable the new channels to get into their strides without excessive additional technical cost.

For Telecom 2, the problems encountered with TDF1 and with cable TV have convinced us that increasing the risks by imposing the "rump" D2-MAC standard (i.e. in the 4/3 format) would amount to wilfully complicating what is already an audacious wager. Let's launch, for the benefit of the majority, these theme channels that only a few hundreds of thousands of French people are now receiving via cable, and only then let's offer the convenience of the new standards. [passage omitted]

Scandinavia Begins D2-MAC Broadcasting

92WS0245D Paris LE MONDE in French 14 Dec 91 p 19

[Unattributed article: "The Filmnet Pay-TV Network Will Broadcast in D2-MAC"]

[Text] The Filmnet pay television network, covering The Netherlands and Scandinavia, will start D2-MAC [Definition 2 Multiplexed Analog Component] broadcasting as of 15 December, using an Astra satellite channel. The film network signed a contract with France-Telecom for the management of the pay channel according to the Eurocrypt standard, and it ordered 100,000 receivers from Philips. Filmnet, which will continue to broadcast in PAL on another channel, will then be able to shift progressively to the 16/9 large-screen broadcasting format. Thanks to this double (simulcast) broadcasting, Filmnet is anticipating for its commercial needs the European guidelines that will soon be adopted and would make such "simulcast" broadcasting compulsory by 1995 (LE MONDE, 3 December). The conversion of Filmnet confirms the breakthrough of D2-MAC on the Scandinavian market, where over 150,000 decoders are in use.

FINLAND

Firm Challenges Agency's Long-Distance Monopoly

92WT0116A Helsinki SUOMEN KUVALEHTI in Finnish 24 Jan 92 pp 42-44

[Article by Jukka Ukkola: "Mammoth's Slimming Diet, Telecom Wants Four Years To Get Ready for Competition"—first paragraph is SUOMEN KUVALEHTI introduction]

[Text] Telecom's president, Pekka Vennamo, has quite an unattractive job. It is his duty to slim down the old mammoths. First the postal service was trimmed; now it is telecommunications' turn.

The division of the Finnish telecommunication business may turn out to be as great a political controversy as the closing down of post offices. Kaukoverkko Oy, a company formed by local private phone companies, is applying for an operating license and will challenge the state-owned Telecom with regard to price competition. This is expected to result in reduced long-distance calling charges over the entire country amounting to one-half billion markkaa, and perhaps will cause Tele to lose some of its most profitable markets.

There is big money in the competition, but quite small margins, since Finland's phone rates are already among the cheapest in Europe, and going down even without the competition.

Telecom is worried, even bitter about what is going to happen to it. It says it does not oppose competition as such, as long as it is equitable. "We will be able to compete, if we are given a few years to get ready," says Telecom's President Pekka Vennamo.

According to Telecom a sufficient adjustment period would be until 1996. In its statement of application for an operating license, Kaukoverkko proposes that competitors be permitted in this market only from that time, which would also be when nearly all international phone numbers will be changed.

"If competition were to be allowed earlier, there is a great danger that we would not be able to trim personnel [through attrition] as fast as we should. We would then also have to consider permanent dismissals," said Vennamo. He hopes that the results of an overall study will indicate where telecommunications competition is headed and how it will be implemented.

4,000 Unnecessary

Telecom has 4,000 persons too many on its payroll. There will not be enough work for them after the old equipment and cables have been replaced.

Last summer Telecom's management and employees reached agreement for a gradual reduction of personnel, which would occur through natural attrition of about 1,000 per year. At the same time, it is to be replaced by a new organization, such as the newest so-called outplacement and contracting businesses.

The superfluous personnel are mostly technicians and some managers that were needed when the networks operated on the old electro-mechanical system and the building of a digital network required extra personnel. The old "hectare-sized" relay fields have been replaced by small, maintenance-free computers, and the whole network will be digitalized by next spring; thus the need to build will decrease drastically.

"There is absolutely no more work for them. Telecom is paying them 800 million markkaa a year in unemployment compensation, which will be in addition to all their salaries," says Vesa Palonen, acting communications minister.

Palonen does not want to estimate how fast Kaukoverkko's franchise application will proceed in the Ministry of Transport. Statements have been obtained, and during the spring summaries and decisions will be made, which, however, do not necessarily have anything to do with when the franchise becomes effective.

Unequal Competition

In addition to their 800 million markkaa in unemployment compensation, Telecom's competitive position will be hurt by its heavy tax obligations to the state and by its legal requirement to operate phone lines in sparsely populated areas, the costs of which are compensated by long-distance charges.

Telecom has to pay the state almost 300 million markkaa from its profit. However, the state takes a total of 550 to 600 million markkaa, because when Telecom was turned into a commercial enterprise 1 billion markkaa of debt was marked in its balance sheet against the property the state handed over, i.e., mainly the telecommunication networks. The interest rate for the debt is 9 percent, and it is payable in 10 to 12 years. "Actually we are paying for the telecommunication network again," says Vennamo.

Altogether the liabilities go as high as over 1 billion markkaa per year. They are remnants from the monopoly period, when revenues and costs had nothing to do with each other. "When Telecom was included in the natioanl budget and its revenues went into state coffers, it was not easy to determine whether operating costs were in proper proportion to revenues," says Vennamo.

Kaukoverkko, on the other hand, can start with a clean slate without old burdens, with new technology, and an appropriate number of personnel. That is why it is in the position of being able to offer services at a low cost.

Telecom Wants To Get Into Cities

Vennamo has a couple of alternatives for the transitional stage to balance the situation: extending the competition also to city local calls or a telecommunication tax.

"Local competition could mean that in the cities there would be two local networks side by side, just like there will be in long-distance traffic. The competition would be targeted mainly toward business phone calls, but also private persons would have the opportunity to choose which network to use, although probably not every house would have two cables.

"Considering the economy, the so-called ONP system (open network provision) would be more sensible. This system requires telecommunication operators to keep their networks available to everyone, in other words, Telecom could rent local companies' lines and vice versa, and further rent them to others. Thus, we would avoid building a double network. With the current technology, capacity is no longer a problem. Now leasing is permitted only for personal use, and ONP will probably not be introduced even later, since work has already been started on building parallel networks."

According to Vennamo it is impossible that companies would be operating in some respects as monopolies and in some as competitors. "In that case nobody could make sure that a company was not making use of its power as

a monopoly to strengthen its competitive position." According to him, this would lead to Telecom shrinking to half what it is today, or that it would be left with having to handle phone lines in only eastern and northern Finland.

"Since the telecommunications law prohibits local phone companies from paying profits to their owners, it is a sheer impossibility that in a competitive situation we would pay profits to the state. That is why we should eliminate the paying of profits to the state, or at least reduce the amount to the level of taxation paid by local phone companies, which is roughly 50 million markkaa, or less than one-tenth of the current level," Vennamo asserted.

"If the government still thinks it needs the 500 million markkaa that it has collected from telephone users by overcharging them for long-distance and foreign phone calls, it must be collected as a tax from all telecommunication businesses."

The Ministry of Finance, however, does not consider Telecom's liabilities to the state unreasonable, but a valid interest for working capital loans.

According to Vennamo Telecom has no chance in a competitive situation to subsidize local tariffs, i.e., to keep the phone call rates low in remote areas. There the local call rates will either increase to correspond to costs or else the government subsidizes them some other way.

"I don't think the increase is desirable, but a balancing factor could be, for example, to collect so much more of a telecommunication tax that the tariffs on scattered settlements could be evened out."

Palonen notes, however, that taking care of local calls in scattered settlements is not absolutely unprofitable, if the number of personnel is proportioned correctly. He gives as an example a Ylivieska-based office, Pohjanmaan Puhelinsouuskunta, which is one of the most profitable telephone offices in Finland despite the fact that it operates in a sparsely populated area.

Markets Beyond the Gulf

Within Telecom there is also fear that if the domestic competition turns out to be very fierce, there will be no resources left for export. Vennamo warns also that while fighting too much with each other, the Finns may lose their own markets, if big foreign companies start selling their telecommunication services straight to businesses, bypassing the national networks.

Palonen sees a danger if the competition drains all the resources: "We will easily be left behind in technical development of our networks, which require new investment every year.

"Exports could be a buffer to relocate the extra personnel in Telecom, above all into the Baltics and close-by areas in Russia. In the next few years we can expect to see enormous telecommunication contracts there when they have to renew their outdated communication methods. The mobile telephone network in the Baltics alone is estimated to be a contract worth tens of millions of markkaa, and renovating the existing network would cost 2 billion markkaa. Already the Swedes, Germans, and Americans are exploring this."

Telecom has already gained a foothold in the Tallinn and St. Petersburg telephone businesses. If it gets hold of big contracts, a labor force could also be placed there.

"The only problem is that Finnish labor is expensive, though skilled. In addition, exports require substantial capital investments that will yield profit only after some time."

Despite everything, the shores of the Gulf of Finland are a powerful attraction for Telecom, since Finland is a good transit country for telecommunication traffic. Next year a fiberoptic cable will be laid across the Gulf of Finland from Helsinki to Tallinn, and will link up with the Estonian network. The Swedes are starting a similar link from Gotland to Latvia. From these cables a circuit will be created which will be important for serving as backup links.

Negotiations are currently being held on building a fiberoptic cable also to St. Petersburg and from there to Moscow. From there a new Russian-American Trans-Siberia cable running along the BAM railroad would continue to the Pacific coast. It would be important also to Finland, because currently all Finland's international connections, even those to the Far East, run through Sweden, the Western route around the world.

Exchange-Listed Company?

Turning Telecom into a corporation and possibly listing it on the stock exchange to add flexibility to its operation has been discussed, especially after Televerket in Sweden was turned into a corporation.

Vennamo admits that running the business by decisions made in the State Council and the parliament is too rigid for the current situation.

On the one hand, a corporation would not have to take care of unprofitable tasks, but on the other hand the problem is that most of the employees are public servants that cannot exist within a corporation. "Are personnel willing to give up their civil service benefits, or is there someone who would pay to compensate them?" asks Vennamo.

The question is being clarified, but so far Telecom thinks that the current problems with costs and personnel must be taken care of before it could become a corporation.

Nokia Changes Operations Chief After Losses

Jorma Ollila Advances

92WT0105A Helsinki HELSINGIN SANOMAT in Finnish 17 Jan 92 p 16

[Article by Hannu Sokala: "Isokallio Leaves Nokia: Vuorilehto Takes Early Retirement, Ollila Becomes Company Head"]

[Text] Owners of the Nokia consortium staged a shakeup in the company's upper management on Thursday. Chief executive officer [CEO] Simo Vuorilehto takes early retirement, managing director Kalle Isokallio leaves the company, and their places are taken by Jorma Ollila, who headed the company's cellular phone division.

Nokia announced on Thursday that Ollila immediately becomes managing director.

Behind the surprising change in leadership is disagreement between Isokallio and the company's executive board over which direction Nokia should take. Isokallio was known to be ready to institute measures more drastic than those of the executive board, which represents the owners.

Vuorilehto, Nokia's current chief executive officer, retires this June, when Ollila also takes his place as chairman of the board. Vuorilehto, named to succeed Kari Kairamo as chief executive officer, was supposed to hold his post until the end of 1993.

Ollila did not want to conjecture why Vuorilehto is taking early retirement. "This is one of those executive board matters we don't bother to ponder. Instead, we get down to work."

Mika Tiivola, chairman of Nokia's executive board, told the Finnish News Agency that the change in managers clarifies the company's future.

"This is a good and expedient solution for creating the conditions necessary to improve the company. It doesn't mean the introduction of a change in company management," said Tiivola.

Tiivola declined to comment on why Isokallio, chosen second in command to Nokia's chief executive officer, was passed over.

Members of Nokia's executive board include—alongside former SYP [Finnish United Bank] president Tiivola—former KOP [National Joint-Stock Bank] president Jaakko Lassila, Kymmene's Casimir Ehrnrooth, KOP's Peter Fagernas, SYP's Ahti Hirvonen, Industrial Insurance's Carl-Olaf Homen, Pohjola's Yrjo Niskanen, Prof. Edward Andersson, and Vuorilehto.

Value of Stock Takes Downward Turn

Nokia has lost quite a few managers in recent years. Company doors have slammed shut, and those who departed were not always in a bad mood.

Those who have left Nokia in the last four years include Jorma Nieminen, who managed the cellular phone division; Antti Lagerroos, the latter's successor; Matti Otala, who was responsible for technology; Stefan Majurin, the marketing manager for consumer electronics; and administrative director Lauri Stahlberg. Kari Kairamo, the predecessor of Vuorilehto, and Timo Koski, a member of the executive board, died in 1988.

The quotation for Nokia's stocks on the Helsinki stock exchange was halted in the morning at the company's request. After quotations were issued, the value of Nokia's stocks took a clearly downward turn. When trading was over, one of Nokia's four stock series showed a rise, the other three a decline.

Nokia is one of Finland's biggest industrial enterprises. Sales last year were about 15 billion markkaa. The company has about 28,000 employees.

From January to August of last year, Nokia's sales dropped 17 percent over the previous year. The pretax figures showed a loss of 205 million markkaa, while in 1990 there was a profit of 425 million markkaa.

After the sale of the computer division, Nokia's most troublesome branch is consumer electronics, primarily the manufacture of televisions. Last year the data communications division, hurt by the Finnish recession and the end of exports to the Soviet Union, also began to show a loss.

Ollila Will Not Discontinue Any Line of Nokia Business

The newly chosen head of Nokia, 41-year-old Ollila, does not intend to discontinue a single significant branch of Nokia business.

"We plan to look after all branches and see to it that each one turns a profit," he said.

Nokia makes televisions, cellular phones, data communications equipment, cables, and cable devices.

Consumer electronics, primarily the manufacture of televisions, fares the worst. Ollila has no wonder drug to make the branch more profitable.

"All our European rivals have the same problem making a profit. The key thing is that Europe has an oversupply of state-of-the-art color televisions and that the competition from Japan continues to heat up.

"We intend to see to it that—within our cost structure—we remain competitive in a tight market. There is nothing to do but roll up our sleeves and get down to work."

Ollila thinks that cooperative alliances formed by big firms will become more common in the electronics industry.

"They'll be formed by both weak and strong companies. It's not a sign of strength or weakness if there are few or many alliances," he said.

Basic Decisions Were Correct

According to Ollila, alliances are not a hocus-pocus solution to the problems of the consumer electronics industry. "We ourselves have to make our businesses show a profit."

Ollila prefers not to discuss the mistakes Nokia has made. "The basic decisions—especially the one to expand electronics—were correct. If errors were made, they are linked to the manner in which we tried to implement structural changes. There the results have not been up to expectations."

Ollila speaks very diplomatically of the performance of Isokallio and Vuorilehto. "It seems to me that they did their best, and there's no reason now to look back."

It is "difficult" for him to say why Vuorilehto's and Isokallio's best was not good enough.

"Now we just have to follow the markets more closely and keep our ears to the ground.

"There are very few strikingly original ways of doing things in the business world. It boils down to hard work and doing little things correctly. That's all there is to it."

Executive Board Briefs Ollila

Ollila, who has a master's degree in political science, worked for Citibank from 1978 to 1985. He became a member of the board of directors for the bank's Finnish branch. After Citibank, he went to work for Nokia, where he served initially as coordinating director of foreign operations.

In 1986, Ollila was named Nokia's director of finance. Since February of 1990, he has served as managing director of Nokia's cellular phone division.

Ollila says he was asked "a few weeks ago" whether he was interested in a new job.

Today he spoke briefly with the company's executive board. "We talked about the company's problems, challenges, and potential, and declared that now it's time to get down to work. Just preliminary talks."

Politics Became Old Hat

Ollila has good connections across the political spectrum. A recently published history of the Finnish University Student Union (SYL) says that in 1972 Center Party member Ollila was named to the SYL's leadership upon agreement between Center and the Taisto Sinisalo communists. Ollila was said to be "capable of cooperating" with the Sinisalo partisans.

Ollila has not engaged in politics since 1977. He is no longer interested in politics. It has become old hat.

Isokallio's Hopeless Attempt

The biggest error made by Isokallio, who has left the Nokia consortium, was obviously the attempt to turn Nokia into a major computer company. The task was hopeless.

After buying the computers of the Swedish firm Ericsson in 1988, Isokallio said he would turn Nokia into an important European computer company. He boasted that Nokia Data's sales would rise to 20 billion markkaa in five years if the company succeeded in its goals.

Nokia never got a firm grip on the market, and last summer the computers were sold to Britain's ICL, which is owned by Japan's Fujitsu. The year before last, Nokia Data's sales were under 5 billion markkaa.

Isokallio is easygoing. He is given to swearing, and sometimes the hair at the back of his neck gets conspicuously long. He has managed to aggravate the gentlemen who sit on the company's executive board.

Isokallio does not hide his light under a bushel. He likes to talk his opponents in circles. All along, Isokallio has had his own ideas about improving the electronics industry, and he has not been ashamed to present them.

Isokallio's wife is the daughter of Mika Tiivola, who chairs Nokia's executive board. Isokallio has said that the family connection does not bother him.

Isokallio is a naval engineer by training. He joined Nokia in 1981. Before that, Isokallio worked at Wartsila for a few years and at IBM from 1974 to 1981.

At Nokia, Isokallio first served as managing director of the company's Swedish subsidiary Kabmatik. Isokallio directed the company's cable instrument division from 1983 to 1985, after which he was named to head the computer division.

Two years ago, Isokallio was named second in command to chief executive officer Vuorilehto.

"If you don't succeed in your job, you simply have to accept finding a better man. The owners have the power and responsibility to make decisions," said Isokallio in a HELSINGIN SANOMAT interview.

SYP Group Biggest Owner

The bloc associated with the United Bank owns about 37 percent of Nokia's voting rights. The bloc's votes clearly surpass those of the KOP bloc.

Nokia has traditionally been a company in which two commercial banks, KOP and SYP, were equally strong. The KOP bloc now has just under 22 percent of the voting rights.

Included in the SYP bloc's votes are those of associated insurance companies and of the Ehrnrooth camp's industrial flagship Kymmene.

Kymmene is the third largest of the individual owners. In addition, the company's pension trust owns Nokia. Kymmene's votes amount to more than 7 percent altogether.

Also included in the 22 percent of the KOP and Pohjola bloc are votes registered in the names of investor Pentti Kouri's two companies. Last summer KOP took over the Nokia stock owned by Kouri's August Group General Partnership.

The turnover of Nokia stock has been brisk during the past year. Last year, the turnover of Nokia's common and preferred stock was roughly 900 million markkaa. Nokia thus represents a significant part of the stock exchange's 6.3 billion-markka turnover last year.

Board Chairman on Plans

92WT0105B Helsinki HELSINGIN SANOMAT in Finnish 18 Jan 92 p B 3

[Interview with Mika Tiivola, chairman of Nokia's executive board, by Hannu Sokala; place and date not given: "Board Chairman Mika Tiivola: Nokia Cannot Be Taken Over"]

[Text] Mika Tiivola, chairman of the Nokia consortium's executive board, considers a takeover of the company impossible.

The bloc associated with the Finnish United Bank owns about 37 percent of Nokia's voting rights. The bloc's votes clearly surpass those of the National Joint-Stock Bank bloc, which now has just under 22 percent of the company's voting rights.

KOP and SYP have traditionally been equal-strength owners of Nokia.

Minister Tiivola earlier served as president of SYP. "There isn't any kind of takeover in the making, as far as I know. If there were, it would be evident in many ways," he said.

Tiivola is not entirely satisfied with the collaboration of chief executive officer Simo Vuorilehto and managing director Kalle Isokallio at Nokia. He says it "could have been better."

On Thursday, Nokia's executive board chose Jorma Ollila as the company's new managing director. Isokallio relinquished the post of managing director immediately, and Vuorilehto retires next summer. According to Tiivola, Ollila has been responsible for Nokia since Thursday.

[Sokala] What went wrong during the Vuorilehto-Isokallio era, chairman Tiivola? Why did the executive board now decide not to let the drama continue?

[Tiivola] Well, the collaboration proved to be troublesome.

[Sokala] Between whom?

[Tiivola] Between those two in particular.

[Sokala] So it was decided to show both troublemakers the door?

[Tiivola] That was the decision.

[Sokala] Was it a mistake to have two directors?

[Tiivola] My reply to that is that it could have gone better.

[Sokala] How will such a surprising change of leadership affect Nokia's image?

[Tiivola] I think people will understand. This is a major change in the company's managerial organization, and it will not go unnoticed or undiscussed. The company must be careful to maintain a proper public image.

[Sokala] Did Isokallio and the executive board differ on how to improve the company's structure?

[Tiivola] No. There was no disagreement of that kind. You always have to take into account that when you discuss long-term issues and strategies, there is an enormous number of factors that must be weighed, and the discussion becomes wide-ranging. But there was no friction in these talks.

[Sokala] Does the executive board have a clear idea of what direction Nokia should take?

[Tiivola] Yes. It is clear to the executive board that under the circumstances we must take structural change into consideration. This is seen in the sale of the Data group to ICL. All these different areas of activity have been discussed, and we have listened to the firm's own experts as well as outsiders. But no troublesome differences of opinion or tumultuous disagreements have surfaced in these talks.

[Sokala] Is it the executive board's view that Nokia can survive by maintaining its current structure, i.e., by preserving all its areas of activity?

[Tiivola] I noticed that Ollila has adopted this viewpoint. And it is, of course, clear that at the present moment and under the current circumstances there is no plan to discontinue any branch. I cannot unambiguously declare that everything will remain the way it is now.

[Sokala] Are you satisfied with Ollila's scheme to "roll up our sleeves and get down to work?" Is this the way he intends to make consumer electronics profitable?

[Tiivola] I wouldn't take too seriously what the newly chosen managing director says right now. I think it's quite correct to roll up our sleeves and get down to work and, of course, approach the issues with an eye on the market and other conditions.

[Sokala] Do you consider it possible for some special interest group to take over the company?

[Tiivola] The ownership structure has remained relatively stable in recent times. It wouldn't be easy for a takeover to occur here behind closed doors. For such a move to take place, there would have to be wide-ranging agreement among the various stockholders. No such takeover is possible.

[Sokala] Do you admit that it was a mistake to buy the Ericsson computers?

[Tiivola] You'll have to ask the experts about that.

[Sokala] But you are...

[Tiivola] I'm not an expert in electronics. The sale took place, and it was an extremely successful move for Nokia. Of course, it was a useless acquisition in the sense that it had to be abandoned so quickly, but here, too, you have to take into account the significantly changed circumstances. A lot of water has flowed under the bridge since Kari Kairamo began to plan and build this company.

Paper Views Firm's Situation

92WT0105C Helsinki HELSINGIN SANOMAT in Finnish 19 Jan 92 p C 3

[Article by Juhani Aromaki: "Nokia's Cockfight Ends"—first paragraph is HELSINGIN SANOMAT introduction]

[Text] Owners of the Nokia consortium decided on Thursday to end the cockfight in one fell swoop: Chief executive officer [CEO] Simo Vuorilehto takes early retirement this summer, and managing director Kalle Isokallio leaves immediately. It was a remarkable decision, months in the making. The owners got an eyeful at the executive board meeting held just before Christmas when "the boys went at each other tooth and nail."

At the meeting of the Nokia consortium's executive board 17 December 1991, Chairman Mika Tiivola was not the only one who had his eyes opened.

The bitter squabble between Nokia's two most important leaders was no longer new to anyone, but this time the gentlemen of the executive board were surprised: Tiivola, then KOP president Jaakko Lassila, Prof. Edward Andersson, Kymmene executive board chairman Casimir Ehrnrooth, KOP director Peter Fagernas, Unitas CEO Ahti Hirvonen, Industrial Insurance managing director Carl-Olaf Homen, and Pohjola managing director Yrjo Niskanen. Nokia CEO Vuorilehto is also an executive board member.

Nokia's consumer electronics division, which has suffered record losses, was discussed at the meeting. The executive board was supposed to approve a redevelopment plan that would make the company more efficient.

The consortium's executive board found itself in an awkward situation, because the company's two highest officials held distinctly different views. It was unprecedented that at the meeting the two men—without knowing each other's ideas—would make various proposals directly to the executive board.

Managing director Isokallio's suggestion might have come as a surprise to chief executive officer Vuorilehto. Isokallio, managing director and second in command to the chief executive officer, suggested that he himself go to Germany for a year or two to put things in order.

In addition, Isokallio's strategy differed strikingly from the ideas of chief executive officer Vuorilehto. He proposed drastic measures to break the spiral of losses. Vuorilehto would have used the current personnel to rebuild more cautiously.

As far as we know, the combatants have bickered over alternatives for half a year. This pigheaded shilly-shallying has not improved the outlook—expected to be dismal—for Nokia's consumer electronics division.

Precious time had already been wasted on regrets in the summer of 1988 when international talent scouts found Frenchman Jacques Noels to head the division. The French gentleman settled in Switzerland, far from the main factories in Germany, and did not assign significant tasks to a single Finn.

Under Noels's leadership, the consumer electronics division was unable to rise from the quagmire—on the contrary, just the opposite. Now we will never know whether Noels would have been booted out if Isokallio had managed to romp around in Germany.

During the last eight months of the year, the Noels division's sales dropped more than 15 percent over those of the previous year—to 3.263 billion markkaa. Losses may continue at the same pace, and it is difficult for the division to find customers in Korea, Japan, or Europe.

It is true that men from Hitachi were seen in Helsinki again in November, but they cannot buy anything yet. Nokia must first get the division on its feet and then try to sell it.

Powerful Nokia Half What It Was

How to restore the consumer electronics division to financial health was not the only topic on which the duumvirate disagreed. The documents that defined the two men's spheres of responsibility were meaningless in practice.

Isokallio and Vuorilehto really held opposite views of Nokia's future. The leaders' thoughts ran in entirely different directions: It might happen that Vuorilehto was planning to buy a cable factory while Isokallio was thinking of selling one.

Isokallio would have chosen more boldly to focus on two areas: Mobira and data communications. He believed these were the areas in which Nokia was most competitive and had the most room for growth.

Isokallio thought that Nokia could be a productive enterprise that increased its sales by 10-12 billion markkaa. Vuorilehto entertained no such idea.

When in a surprise move Vuorilehto became chief executive officer in the confusion following Kari Kairamo's death, Nokia was Finland's biggest private company with sales of 24 billion markkaa. Who would have thought that Nokia would be reduced to a medium-sized industrial firm in three years!

After the sale of Nokia Data last year, Nokia's sales were 15 billion markkaa. There were about 27,000 employees.

Outsiders also consider the sale of Nokia Data a successful move. A profit was turned, even though not a word was whispered in public about the purchase price. Because of the timetable for conducting transactions, the secret sum may not be revealed until publication of this year's balance sheet in the spring of 1993.

Nokia's owners are represented by bankers and industrialists. If Finland's economy is not in good condition, then Nokia's institutional owners are not, either. This has led to vacillation within Nokia—especially when the owners are not on particularly good terms.

One Viewpoint in Consortium

The trio of Mika Tiivola, Vuorilehto, and Isokallio—intertwined since the death of Kari Kairamo in December of 1988—has now run aground. The approval Isokallio once conspicuously expressed for Vuorilehto has vanished into thin air, and Tiivola and Vuorilehto are no longer on speaking terms.

On the other hand, Isokallio is still Mika Tiivola's son-in-law.

When the dictatorial Vuorilehto replaced Kairamo, people began to flee. The list for the last four years is long: Jorma Nieminen, Antti Lagerroos, Matti Otala, Stefan Majurin, and Lauri Stahlberg.

Many even compared Vuorilehto's method of management to that of Stalin: Everyone is a Russian, no matter what his nationality.

"In most companies, divergent views can be expressed, but in Vuorilehto's Nokia there was no freedom of opinion," say critics.

Under the new regime, many workers loyal to Kairamo were either ousted or demoted.

After Isokallio and Vuorilehto were fired, Nokia's executive board did not have many in-house candidates for new managing director.

The bankers and insurance men knew very well Nokia's former director of finance, Jorma Ollila, who was chosen Thursday as the company's new managing director. He moves up from the post of cellular phone division manager.

Many think that Seppo Ahonen, manager of Nokia's successful cable and machine industry division, would have been another good choice.

Ollila, master of political science, has accomplished a lot for a 41-year-old. Even as a student, Ollila was considered a tough guy who "would join forces with the devil if it were necessary."

Not all of his school chums noticed that Ollila had changed his views, even though he switched from the Conservative Party to the Center. A few years later he was chosen chairman of the University Student Union (SYL) upon agreement between the Center and the Taisto Sinisalo communists.

A history of the SYL reveals that the agreement to choose Ollila was signed by Seppo Harkonen, then leader of Center Party students and now special assistant to the prime minister; Juani Wiio, director of development for the Finnish Broadcasting Company; and Sinisalo honchos Reijo Kalmakurki and Jyrki Oranen, managing director of the bankrupt Friendship Tours.

Ollila has belittled his political activity, but he has many friends and acquaintances from political life. For instance, Ollila and Nokia executive board member Peter Fagernas were on the SYL board of directors at the same time.

Ollila was an ardent traveler during his SYL days and handled "foreign affairs" to the exclusion of everything else. Ollila left the SYL to become the Center Party's secretary for international affairs—and close associate of Mikko Immonen and Paavo Vayrynen.

In particular, Ollila handled affairs with what was then the Communist Party of the Soviet Union. Among his colleagues were current Prime Minister Esko Aho and Center Party parliamentary group chairman Seppo Kaariainen.

Ollila left politics in 1977. His friends seem to recall that former Center Party student Pentti Kouri and Paavo Vayrynen introduced Ollila to Nokia's then chief executive officer, Kari Kairamo, who brought Ollila to work for Nokia.

FRANCE

Telecom's New Cellular Phone Being Tested

92WS0235C Paris AFP SCIENCES in French 5 Dec 91 p 19

[Text] Strasbourg—On 2 December in Strasbourg some 2,000 people began testing Bi-Bop, France Telecom's new cordless pocket telephone system which makes it possible to place national and international calls from the street.

Each of the lucky 2,000 who will receive the tiny telephone set—it weighs 200 g and is the size of a pocket calculator—has been asked to come in for his or her own

personalized demonstration. France Telecom hopes to use this six-month test to fine-tune its new product before launching it in Paris in April 1992. While this is a pilot program, participation is not free. Even so, applications streamed in, and it was necessary to reject one out of two.

To allow communication, 270 public terminals were installed in local shops in order to create a network in the town center. In compensation for the presence of a terminal in their shop, merchants have a choice between a lump sum of 1,000 francs a year or a Bi-Bop cordless telephone and free service.

Use of the Bi-Bop will not be limited to just the street. It will also be possible to use it at home or at the office, in which case the set will link to a private terminal or a business telephone exchange.

Group Formed To Promote HDTV

92WS0236B Paris AFP SCIENCES in French
5 Dec 91 p 22

[Unattributed article: "Creation of Working Group To Promote HDTV in France"]

[Text] Paris—Several French ministers and other notables involved in European HDTV [high-definition television] decided on 28 November to create a working group to consider ways to promote the 16/9 "cinematic" television screen format.

The meeting was attended by Ministers Elisabeth Guigou (European Affairs), Jean-Marie Rausch (PTE [Posts, Telecommunications and Space]) and Georges Kiejman (Communication), as well as the CEO's of Canal Plus and Thomson Consumer Electronics, Messrs. Andre Rousselet and Bernard Isautier.

Participants agreed on the need to promote 16/9, since this wider-screen television format is better adapted for the viewing of motion pictures and sports events. The 16/9 format should also promote the new D2-MAC [Definition 2 Multiplexed Analog Component] standard, which is a stepping-stone toward European HDTV.

At the same time, a new version of the draft European directive on HDTV reportedly has been drawn up in Brussels; several countries have been trying to kill the previous version for months. The new draft, which according to some sources "may be fairly close to the French position," apparently has been adopted by the European commissioners and should be presented at the next meeting of EEC posts and telecommunications ministers before Christmas.

Alcatel Subsidiary To Focus on Telecommunications

92WS0305A Paris L'USINE NOUVELLE in French
9 Jan 92 p 14

[Article by Jean-Pierre Jolivet: "Alcatel Abandoning Production of Fax Machines"—first paragraph is L'USINE NOUVELLE introduction]

[Text] Prices have plunged and profits have eroded, and research and development costs are too heavy. So the group prefers to focus on telecommunications.

The watchword at Alcatel Business Systems is realism. This subsidiary of the number one in telecommunications, which handles the group's business communications systems activities, and accounts for annual revenues of 16 billion francs [Fr], has abandoned the development and production of the next generation of fax machines. "The accelerated rate of the drop in prices and the erosion of profit margins have dissuaded us from investing in a future line of fax machines," says Frederic Pinot, general manager of Alcatel Business Systems. Nevertheless, the group, which is actively seeking new suppliers, intends to stay in this market—in which it holds an 18-percent share in France—by continuing to market this type of equipment.

Like many manufacturers, Alcatel Business Systems—which grosses Fr400 million annually in this sector—is having to cope with a tight market. The fax machine is becoming a general consumer product, making very-high-volume production indispensable. Only significant market shares and a worldwide approach have enabled the Japanese and Koreans to extricate themselves without loss. With a production of 100,000 machines by its Alsatian plant at Woerth, and despite good market positions in France and Germany, Alcatel Business Systems is very wide of the mark.

The more so in that the marketing of these machines necessitates a strengthening of traditional distribution networks. New outlets for bottom-of-the-line products are making their advent. The result is a severe erosion of profit margins. Alcatel Business Systems has not succeeded in reducing production costs, and this has further aggravated the situation. The value added by the manufacture of a fax machine is dependent now on the cost of components, which are becoming increasingly integrated (ASIC's [application-specific integrated circuit(s)]), and on the cost of research and development, which is becoming very heavy. Alcatel Business Systems has signed technological agreements with SAGEM [(French) Company for General Applications of Electricity and Engineering], for its latest line of fax machines, launched last September, and with Hewlett-Packard in the domain of laser printing.

The decision to halt the development and production of fax machines reflects the intent of the group headed by Pierre Suard to focus on its basic specialty, namely,

telecommunications. Since the advent of Hughes Garin as president, there has been much rethinking of strategies.

To begin with, the idea of selling the company's business in terminals produced by its Consumer Products Division (Minitel terminals, telephone terminals, answering machines, wireless telephones) to TCE [Thomson Consumer Electronics] was finally rejected. "With 7 million telephone sets sold worldwide, we have market shares that enable us to hang in. And in order to sell PABX's [private automatic branch exchange(s)] to business, we must also offer terminals," says Frederic Pinot. The prototypes of videophones, telephone sets equipped with liquid crystal displays [LCD's], and other Minitel terminals of the future, unveiled at the Telecom '91 show in Geneva last October, attest to the group's ambitions in this domain.

As for the group's mail room facilities business the case is not the same, and Alcatel NV has recently put it up for sale. Although it holds the number two market position worldwide, after the United States' Pitney Bowes, the French group is abandoning a profitable activity. Research and development costs, however, are rising incessantly.

Alcatel Business Systems's 2.4 percent profit margin is half that of the group's other subsidiaries, and the need for Alcatel Business Systems to pull its performance up to par with them in 1992 is urgent.

Debates Delay Development of D2-MAC HDTV Standard

92WS0165A Paris LE MONDE in French
13 Nov 91 p 25

[Article by Michel Colonna D'Istria: "Disputes in France Delay Development of European Television"—first paragraph is LE MONDE introduction]

[Text] The laborious work of elaborating a directive on technical standards for satellite broadcasts is delaying development of the intermediate D2-MAC [Definition 2 Multiplexed Analog Component] standard and thus compromising the future of European high-definition television [HDTV], because timing has become a crucial factor for industry. In that context, the disputes within France over utilization of the Telecom 2 satellite are adding to the uncertainty....

How are consumers to be introduced to the television standards of the future—and thus induced to purchase replacements for the enormous number of television sets already installed? Let market forces do their work, say the commercial stations: When the consumer demands higher-quality images, we will offer them. But manufacturers and authorities in several countries, including France, disagree.

Europe, in 1986, adopted a strategy of autonomy vis-a-vis the Japanese; it has fought for recognition in technical circles, and it has invested in a technology, HD-MAC [High-Definition Multiplexed Analog Component]. Philips and Thomson have a 20 billion French franc [Fr] joint program, Thomson receiving Fr3 billion over a six-year period in French subsidies for research. This industrial policy thus needs to be consistently applied to regulations in this domain.

The real debate has crystallized around a satellite television directive currently being considered in the European Parliament. Since 1986, the intermediate D2-MAC standard has been imposed on satellites with powerful broadcast signals by means of a directive that expires at the end of 1991. But those satellites have been through various changes, and the directive has been legally evaded, notably by Astra, the Luxembourg satellite. The Commission has thus proposed a new directive, to extend D2-MAC to all satellites, with a clear timetable for conversion or at least "simulcasting," that is parallel broadcasting in D2-MAC and Pal or Secam (LE MONDE of 5 September).

Three Stages

The lobbying has been intense (LE MONDE of 6 and 28 June). Most opponents of the directive object to the strategy. They believe that in the short term the obligation to broadcast D2-MAC saddles broadcasters and consumers with additional expenses without providing any real benefit. They also believe it is a risky gamble, because new digital HDTV technologies hatched in the United States will rapidly overtake it. This view is reflected in the very negative assessment of the directive made by the consumer protection commission of the European Parliament. The commission on economic and monetary affairs, which deals with the parliament's industrial policy, has taken a different position. On Thursday, 7 November, it adopted an amended version of the report prepared by French Socialist Deputy Gerard Caudron. Though the most extreme laissez-faire formulations were softened, this close vote opens the way to a new compromise, without eliminating the final objective: Europe-wide HD-MAC television.

It confirms HD-MAC as the sole HDTV standard "except for totally digital technology." It also recognizes D2-MAC as the sole standard for satellite broadcasting in the new 16/9 screen format which manufacturers are vigorously promoting. According to the report, all television sets with new-format screens—not those that are able to receive broadcasts by satellite or cable on the new standards, as the manufacturers had proposed—should be required to support D2-MAC. Finally, it proposes a three-stage process by which television stations would make the transition to D2-MAC or "simulcasting": 1992 for newly offered services, 1994 for pay television, 1996 for all the others.

This text will be submitted to the European Parliament on 20 November and, on that basis, the Commission will offer its proposals to the Council of Ministers, which will make a final decision at its 5 December meeting.

Between now and then, bargaining in the corridors will continue over several points that have not yet been clarified: the aid—mentioned but not guaranteed—which the Commission has requested to lure the broadcasters and "sweeten the pill;" and signing of a "memorandum of understanding" (the famous "MOU"), which by committing all the players to concrete steps implementing the new standards would be a necessary counterpart to the directive, from the Commission's point of view.

Canal Plus

Within France, the debate was recently rekindled in connection with a satellite to be launched in December that probably will not be affected by the directive. Telecom 2, having relayed broadcasts of the Olympic Games from Albertville, is now getting a "bouquet" of specialized stations such as Canal J, Canal Jimmy, Euromusique, TV Sport, etc. These stations are controlled by the cable operators and Canal Plus. Several months ago, it was expected that they would broadcast in D2-MAC, thus proving that France and Canal Plus were committed to the new standard.

Now Mr. Andre Rousselet has let it be known he wanted the stations to broadcast in Secam on Telecom 2. The head of Canal Plus has decided that given the lack of 16/9-format programs and receiving equipment, he must broadcast in 4/3, and under such conditions D2-MAC is on balance a commercial liability. Mr. Rousselet, noting the widespread opposition of European broadcasters to the directive, says he would prefer to see efforts focused on providing incentives, starting with the pre-Europesat and Europesat satellites.

In 1994 and 1996, those satellites will replace the faltering TDF1 and TV Sat and assure a special European niche for HDTV. But not all of the financing has been arranged: Though France, with unwavering support from Canal Plus, has certainly agreed to finance five pre-Europesat channels, German broadcasters are dragging their feet, preventing Bundespost Telekom from making commitments without assured customers.

The position taken by Canal Plus has discomfited the authorities and France Telecom. They see it as a precedent that other opponents of the directive will surely follow. As one specialist on the HDTV issue sums it up: "D2-MAC is a sitting duck just now. Unless a clear direction is established quickly, D2-MAC is finished. And that will probably mean the demise of HD-MAC, despite all the reassuring statements."

In reality, Mr. Rousselet's position—backed as it is by some reasonable arguments—holds another manifest advantage for Canal Plus, albeit one that has not been put forward much. Broadcasting in Secam, Telecom 2 should be able to use special decoders controlled by Canal Plus for its pay stations, whereas broadcasting in D2-MAC would help build a more technically and commercially open pay TV system in France. Pay TV is a potentially large market (LE MONDE of 8 November), and Canal Plus has no intention of helping its competitors gain access to it. The new standards upset existing arrangements: That is why people are getting upset and challenging them.

Better Image

The MAC family of standards, by separating luminance, chrominance and digitized data signals from the sound during transmission, improves the quality of both television image and sound. D2-MAC, already available—it is used on the Paris cable network and TDF1, for example—offers the possibility of using the new "16/9" format instead of the "4/3" format that corresponds to the ratio between width and height of current television screens. The new 16/9 television sets permit a broader linear sweep of the electron beam that forms the image, while the more rectangular format is closer to the shape of the human visual field and cinema screens.

When combined with the Eurocrypt coding standard, D2-MAC is particularly well adapted to pay TV stations. Broadcasts in HD-MAC, which offer true high-definition images (doubling the number of lines per image), are expected to begin in 1995, after being tested in 1992 at Albertville. They could still be received on D2-MAC equipment, but with some loss of quality.

Thomson Launches Videocommunications Branch

92AN0164A Paris ELECTRONIQUE HEBDO in French 19 Dec 91 p 9

[Article by Stanislas du Guerny: "Thomson Broadband Systems Launches Its Operations"]

[Text] Specialized in cable videocommunications, Thomson Broadband Systems starts up its industrial operations in January 1992.

Continuing its search for new opportunities—necessary due to military budget restrictions—last July, Thomson CSF announced the founding of a unit, specialized in cable videocommunications. Called Thomson Broadband Systems, located on the point of Vernis in the technical center of Brest-Iroise, it is now entering the operational stage; it will start operations in January 1992. Over three years, 130 million French francs will be invested in the new factory. "The market which interests us is the cable networks in cities and at the European level," explained Thomson Broadband Systems management. The new fiber optic transmitting equipment will be developed with the assistance of Thomson's electronic research laboratory at Rennes. The Joint Center for Television and Telecommunications Studies (CCETT) is also one of the main scientific partners in this new operation; its products may require the consent of France Telecom.

"By 1995 our staff manpower will consist of 165 people," announced Christian Joeckle, industrial director of Thomson Broadband Systems. However, the factory will start in a few days with a small team of 50

people, two-thirds of whom are engineers or senior technicians. Some 12 percent of the small to medium-sized company's annual revenue will be devoted to research and development. New product research will be carried out either in the internal laboratory or within the group. For all that, Thomson Broadband Systems intends to award its cabling, card assembly, sheet metal fabrication, and mechanical components manufacturing to independent contractors.

The arrival of the company in the Finistere region has renewed the spirit of the people of Brest. During the last five years, Thomson CSF's manpower in the region has been reduced from 2,200 to fewer than 1,400 employees.

GERMANY

Telecommunications Minister on Privatization

92BR0172X Paris ENTERPRISES & TELECOMMUNICATIONS in French Jan 92 pp 88-91

[Interview with German Telecommunications Minister Christian Schwarz-Schilling by Herve Marchal; place and date not given: "Forty-Nine Percent of Telekom Must Be Privatized"]

[Text] German Minister for Post and Telecommunications Christian Schwarz-Schilling, the man who has guided German telecommunications through change for nearly 10 years now, has announced the next stage in his reform. This will be the privatization to the tune of 49 percent of Telekom. He must, however, secure the agreement of the opposition in the Bundestag. This kind of development requires a modification of German Constitutional Law. In any case, he wants to act speedily. His deadline is 1992. However, he is in favor of maintaining the monopoly on telephones and the basic network in the long term. He agrees that Europe should adopt a pragmatic industrial policy. And he remains optimistic on the Community's prospects in terms of world competition.

[Marchal] You have promoted and directed German telecommunications policy for nearly 10 years now. In this respect, you have launched a major reform in which you have played the key role. How far has this reform progressed today? Are you going to continue, even reinforce it?

[Schwarz-Schilling] The greatest reform possible was carried out at the time. When I set up and completed this reform, it was impossible to go any further. It was then and remains now the most important reform of the century. Since then, however, a number of new elements have emerged and provide us with the opportunity of taking a step further. They are the development of world markets and, even more rapid, of the European market and the special efforts to equip our five new Laender. The latter has had significant financial consequences.

We should therefore move ahead but we will have to find the necessary political consensus with the opposition, because this progress requires a modification of constitutional law. This means achieving a two-thirds majority in the Bundestag, our Parliament. At the time of the reform, about two and a half years ago, this kind of consensus was impossible. Today, considering the developments I have just mentioned, it is possible to achieve.

[Marchal] Do you therefore think that you will be able to successfully accomplish this new stage in your reform?

[Schwarz-Schilling] No, I did not say that. I indicated what I would like. Because I do not know if, right now, consensus can be reached with the parliamentary groups I need. I suppose that in two or three months we may be able to judge if the necessary majority required to change the constitution can be reached.

[Marchal] What would the terms of this development be? Would it be a total deregulation comparable to that in force in Great Britain?

[Schwarz-Schilling] For certain points, yes; for others, no. The status of the company would have to be changed. The best thing would be for it to adopt the status of a corporation so that Telekom could have real freedom to operate at world level. This is not at all possible now because of the present state-controlled structure of the company. According to our constitutional law, the German Government is not allowed to operate in Japan, the United States, or in any other country; we can only act through subsidiaries. But that is not a good solution. Parallel to that, we have no intention of relinquishing the majority in this new company under private law. The state as a majority shareholder is a good thing.

[Marchal] Does Telekom have to be privatized to be able to operate abroad?

[Schwarz-Schilling] Yes. It is absolutely necessary because if it keeps its status as a state institution it cannot effectively act as an operator in foreign markets.

[Marchal] But what kind of status would the national operator Telekom then have?

[Schwarz-Schilling] The status of a corporation.

[Marchal] Would this status be comparable to that of France Telecom?

[Schwarz-Schilling] France Telecom is a public company, it is not an ordinary corporation. As an institution, I believe that it has public missions to assume. But I think that this status will no longer be necessary in future.

[Marchal] Will Telekom be a company with private capital?

[Schwarz-Schilling] One could imagine that private capital will reach 49 percent, and this would settle many financial problems. I believe indeed that the government

will get a good deal when Telekom is quoted on the stock exchange. But certain legal aspects will have to be changed. The financial compensation of telecommunications to the postal service will no longer be able to take place, because this provision is not in keeping with those concerning corporations. Until such time as the postal services balance their budgets—in or around 1996—the financial compensations provided by Telekom will have to be maintained.

[Marchal] How long will this reform take?

[Schwarz-Schilling] The decision should be made during this present term of office, in 1992. Otherwise, "he who arrives too late is punished for life," as Gorbachev would say. The respective market shares of the major international operators will be decided on in the next few years. If we lose time in useless debate, if we are told, "we will think about it, we will introduce this reform during the next term of office," it will already be 1997-1998 and by then I believe it will be too late; especially in Europe. Operators in eight EC countries already have the status of a corporation (Italy, Spain, Great Britain, the Netherlands, Denmark...). Only France and Germany, the two most important countries, have not yet taken this step.

[Marchal] And you want to take it...?

[Schwarz-Schilling] Yes. If the political conditions are right, I will do it.

[Marchal] That means that France could find itself very isolated with its nonprivatized operator.

[Schwarz-Schilling] Such a danger could indeed exist; however, I think that in France there is also some debate about the privatization of state-owned companies. Take the case of Bull, for instance, where foreign capital was even brought in. Thus, the question should be raised whether our companies should not first and foremost be organized for private law status, so that capital does not come from just any source. This would allow the company to be quoted on the stock market under the best conditions, or to give associates shares. This would, in my opinion, be a much more satisfactory solution. I think that the French Socialist Party no longer rejects this kind of thinking as it did 10 years ago.

[Marchal] Do you envisage British Telecom-style privatization with a large number of shares being held by the general public?

[Schwarz-Schilling] My preference would be for a wide distribution of shares, a popular shareholding. Like we did with Volkswagen, for instance. Parallel to this, we should be careful that a limited number of shares are issued, to avoid the formation of oligopolies. This could happen if other telecommunications companies started to purchase large packets of shares.

[Marchal] Why do you think that privatization should not go beyond 49 percent?

[Schwarz-Schilling] Telekom is at the moment carrying out several public-interest missions: extension of networks, provision of the same services in rural and urban areas at the same inexpensive rate. Some politicians would like it to maintain its monopoly on the network and telephone service. This is why state control over 51 percent of the shares is logical. For this reason I would commit myself to seeing that Telekom maintains its monopoly over the telephone and the network.

[Marchal] Could the work that is currently being done in the eastern part of Germany to upgrade the network—Telekom is not working on this project alone—not be considered as a test case for future competition?

[Schwarz-Schilling] Not at all. The conditions are absolutely identical. There is the same degree of competitiveness and the same monopoly. But there will be a transitional period offering the possibility to private companies of providing telephone services by satellite to establish links between the eastern and western parts of Germany. I allowed this because, in many cases, Telekom could not provide telephone services quick enough. And I did not want firms which were likely to invest in the eastern part not to do so because no telecommunications network existed. But as soon as Telekom is able to provide normal operational services, in other words in one or two years time, it will be more cost effective for companies to communicate via the public telephone network. The only difference is that the eastern part will have the most modern telecommunications system in Germany in three to four years time.

[Marchal] What do you think of the latest European directive on the attribution of government contracts? Does this mean that there will be a real opening from now on?

[Schwarz-Schilling] That we must operate in a much more liberal way is clear. At the European level, differences between a national company and a European company should no longer exist. In Germany we are quite advanced in this respect, but many companies do not take advantage of the situation or are not capable of meeting the required specifications. For this reason it is necessary to achieve joint standards rapidly. Otherwise we can issue as many directives as we like but nothing will work. But there are also political barriers. I would like France to liberalize its market in this sector, because it is quite difficult for German companies to become public sector suppliers.

[Marchal] Is the problem of standards of top priority today?

[Schwarz-Schilling] In certain sectors, standardization is an absolute prerequisite. However, at the same time, for reasons of efficiency, we cannot choose more than two or three switching systems per country. Therefore, in this area, we will need 10, even 20, years for specifications to be harmonized because the lifespan of these systems is 10, 20, or 30 years. But the situation is different in other sectors. For terminals, for instance, or for the provision

of services, it is possible for French firms to work in Germany and vice versa. We are heading toward open networks, which can be used by any services supplier. Consequently, there is no need to undertake major standardization work. I am saying this because, very often, the question of standardization is an excuse not to open up markets; to be protectionist instead.

[Marchal] Specifically, are you interpreting the Open Network Provision (ONP) in the British way—i.e. cut-throat competition—or in the French way—i.e. harmonization of the major European public networks?

[Schwarz-Schilling] We tend more toward the British interpretation in this sector. However, I would not speak in terms of cut-throat competition but free competition. On the question of value-added services and data communications services, we have a situation of totally free competition in Germany, whereas in France there is partial regulation with respect to approval and authorization. As for data switching, we have full competition; in France there are specifications with very special conditions which do not exist in Germany and which we do not consider to be necessary. In the area of telex services, France still has the monopoly, whereas here we have free competition. For leased lines, we no longer have restrictions, whereas in France, if my memory is correct, there is still one which is in effect until 31 December 1992, regarding the resale to third parties. Thus, in this sector Germany takes a more liberal stance which tends more toward the British interpretation. However, it is only a matter of a couple of years, or even months, before France adopts this attitude because it is the general trend.

[Marchal] Is the position you have just expressed about France not too diplomatic?

[Schwarz-Schilling] Why should you think that?

[Marchal] There is the feeling that the gap is very wide between your general orientation and that of the French.

[Schwarz-Schilling] The differences were even greater three years ago. In the meantime, France has also experienced reform. As for the EC directives, we are in agreement on many sectors. For others, however, negotiations are intense. All in all, you know, harmony between the two countries has not waned. On the contrary, it has increased a great deal. Therefore it was not a diplomatic reply. In fact France will adapt because this is the general trend in Europe, Asia, and the United States. There is no question of preserving an island of protectionism in an ocean of liberalization. And I have noticed that the new [French telecommuncations] minister, Jean-Marie Rausch, has taken this view.

[Marchal] What are the main areas in which you have problems with France?

[Schwarz-Schilling] It does not seem right, for example, that the French Government has so much control on the question of German companies buying stakes in French firms. I would have liked to see that at the time when Alcatel took over SEL [Lorenz Standard Electric] in Germany—which we accepted without any restrictions—Siemens or other companies would have been able to take similar initiatives in France. This could have been the case with the CGCT [General Company for Telephone Engineering] which was finally taken over by the Swedish firm Ericsson, solely because of government intervention.

[Marchal] One of the most important questions for Europe today is the following: Should the EC equip itself with an industrial policy in a field as sensitive as electronics, for example?

[Schwarz-Schilling] It is absolutely essential that we join forces. But the question is how? The Japanese found a very efficient formula by "voluntarily" joining their forces at the national level. There is no question of this in Germany because we are against any kind of government planning. Indeed, I think that the best solution is a compromise between the two. There are sectors in which results can be achieved only if significant resources are mobilized. That is why I think that we can only be successful if we look beyond national borders and build on European strengths. I am very pleased with such programs as EUREKA [European Research Coordination Agency] and RACE [Reserach and Development in Advanced Communications Technologies in Europe], in which we are endeavoring, on a voluntary basis, no one is obliged, to coordinate our objectives for the whole European continent. So I am fully in favor of coordination and pooling resources. Otherwise, we will not survive in the world battle which is raging between other major industrial powers in the United States, Japan, and East Asia. However, we should not drift towards political regulation. We should always remain pragmatic.

You see, I am more on the French side than the British. In England, complete industrial sectors are disappearing. This is not the future I would hope to see for Europe. But agreement must be reached on funding research and development programs. And in this respect, we have completely different models. Direct subsidies do not exist in Germany.

[Marchal] Let us take JESSI [Joint European Submicron Silicon Initiative]. Do you think we can achieve collaboration between the three main chip manufacturers, i.e., Siemens (which has nonetheless come to an agreement with IBM), Philips, and SGS-Thomson?

[Schwarz-Schilling] To accomplish such an important project, we need above all to define the European objectives. I do not think it would be a good idea to reinvent the wheel when it exists somewhere else as a finished industrial product. In fact, since financial problems are widespread, we should set our priorities. Would it not be better to restrict ourselves to very limited objectives which would enable us to be competitive in relation to American and Japanese manufacturers and to avoid sectors of the market where excellent products already

exist? All that we need to do is to opt for a very realistic approach leaving questions of prestige to one side.

[Marchal] The area of high-definition television (HDTV) embraces both the aspect of state prestige and the strictly economic aspect: The survival and development of two major European manufacturers, Philips and Thomson, are at stake. What are your thoughts on this issue?

[Schwarz-Schilling] I fully endorse the adoption of D2-MAC [Definition 2 Multiplexed Analog Component] and HD-MAC [High-Definition Multiplexed Analog Component] as European standards for satellite-transmitted HDTV. Unfortunately, we were unlucky. Because our first satellite was not operational, we were delayed by two years. I fully agree with the French, whom I have always supported on this issue, although in Germany there is a huge controversy with broadcasters on the subject.

This is why the European HDTV directive has to be adapted to the realities as they exist. We cannot say "from 1992 onward, there will only be D2-MAC for satellite transmissions," when in Germany we have 3 million satellite aerials which operate in PAL or SECAM. Therefore we need the so-called "simulcast," which offers the possibility of working with the two standards and progressively passing to the new one.

I am fully aware of the importance of leisure electronics for the European microelectronics sector. It would be most unfortunate if such an important sector were to no longer exist to provide us with European-made electronic chips and components.

[Marchal] The D2-MAC seems to have a real market from now into the next century, but is the analog HD-MAC not destined to fail considering the imminent arrival—if what American manufacturers are saying is true—of digital HDTV?

[Schwarz-Schilling] No, I do not agree. If we want to hold on to all of this sector, it is important that we start building up markets now. It is like mobile radio communications. If we had made the decision not to have an analog standard while waiting for the digital GSM ([Special Mobile Group] standard), we would not have mobile communications in Germany today. Cars would not be adapted to it; there would be no customer service; and the client himself would not be aware of the advantages of the mobile telephone. This is why it was important to start with the analog standard. And, on the basis of this experience, we are now able to introduce digital technology much more easily. The same goes for HDTV. We absolutely cannot burn our bridges. We must take it one step at a time.

France, for example, set out on the wrong track at the beginning of the 1980's by banking on fiber optics to launch cable TV. I had to fight a hard battle in Germany. I was told at the time that France and Great Britain were using fiber optics. So I carried out all the necessary studies and I noted that this technology was not at all cost effective for home cabling. We chose copper and now 10 million homes have cable. This would never have been possible had we started with fiber-optic cabling.

But today, all our inter-city connections for the telephone network are done with fiber optics. The only segment in copper is the connection from the roadside, where the fiber passes, to the home. And by the time full fiber optics is available for all homes, 15 million homes will already be connected.

The story is much the same with the Caravelle in aeronautics. The leap from the Caravelle to Concorde was too great. It would have been better to take an intermediary step and to build aircraft like the Boeing, for instance. Fortunately, we produced the Airbus and made up for lost time.

We are in the very same situation with the digitization of television. It will be years before the United States introduces the digital technology. This is why I think that we must take a small step forward first and not one that takes us into the next millennium.

[Marchal] The coordination committee for the multilateral control of exports, Cocom, which was set up during the Cold War to protect western technology from falling into the hands of Communist countries, forbids the laying down of a Transsiberian fiber-optic cable linking the Baltic to Kamchatka. Considering recent political developments in the East, do you think this is realistic?

[Schwarz-Schilling] We have always been committed to establishing this link. I do not think that this stance makes sense any more. Dictatorships are even more nervous when modern mass communication techniques exist because they cannot control how they are used. In my opinion, this will not last. But for the security of our own links with the East, we should also have transmission.

[Marchal] You are generally described as a very committed European. Tell us how you think European telecommunications can keep its good position in the world market today against Japan and the United States?

[Schwarz-Schilling] Competition is always a good way of keeping strong. But it cannot be a one-way process. It must be fair. Also because of the increasing automation in the high-technology industries, labor costs have less impact. Europe therefore has an opportunity to occupy a leading position thanks to its know-how. One difficulty of a social nature may persist, regarding the reduction of working time, securing more holidays and social benefits. If this aspect, and this one alone, explains Japanese or American superiority, then we are wrong. However, if we pay close attention to this internal problem and we obtain, from the exterior, equitable conditions of competition, Europe will then find its place. It will have nothing to worry about.

JESSI To Focus on Telecommunications Technology

92WS0260DA Duesseldorf VDI NACHRICHTEN in German 27 Dec 91 p 1

[Unattributed article: "Flagship Projects Clarify JESSI's Direction: To Date DM930 Million Has Been Invested in the Chips of the Future"]

[Text] Duesseldorf, 27 Dec (VDI-N)—The two-year initial phase of the European Microelectronic Program JESSI (Joint European Submicron Silicon) ends at the end of this year. Consequently, the JESSI board is currently taking stock: During the initial phase, approximately 3,000 man-years of sci-tech work was performed in more than 120 companies.

Research fields were chip technology, devices and materials, applications and systems, as well as basic research in the field of microelectronics. The funds spent for this amounted to approximately 930 million German marks [DM]. Approximately half of that came from industry, 40 percent from national governments, and only roughly 10 percent from the EC.

The experiences of the initial phase resulted in a fundamental restructuring of the program for the main phase which begins on 1 January 1992. The focus of the new design is a number of so-called project clusters consisting of several related individual projects. A so-called flagship should illustrate the direction of the projects. The entire program is simultaneously tightened up and more clearly directed towards immediate applications. The core fields of future activities are chips for high-definition television HDTV, digital sound radio, broadband ISDN, and cellular mobile radio as well as electronics for increased auto safety.

JESSI's budget for next year—more than DM800 million—has already been adopted within the framework of an agreement between the companies participating in JESSI, the national governments, and the EC.

ITALY

Improved HDTV Codec System Described

92MI0257X Milan L'ELETTROTECNICA in Italian Jan 92 pp 79-80

[Article by Giovanni Ricca: "Evolution of the HDTV Codec"]

[Excerpt] [passage omitted] The managing director of Alcatel Telettra, Domenico Ferraro, later detailed the recent improvements to the HDTV codec.

First, the new codec is capable of functioning at a bit rate of between 45 and 145 Mbits. This opens up new possibilities for transmission of the HDTV signal through a single fiber-optic channel at a U.S. Standard of 45 Mbit, or at the new Sonet Standard of 51 Mbit, or a narrowband satellite communication channel (27 or 36 MHz), with notable savings, both in the cost of satellite time, and in the construction of ground stations. This result was obtained by combining the DCT [discrete cosine transform] hybrid, already used in the version presented last year, with a compensation for movement, which allows for transmission of only the moving parts of scenes, thereby reducing the quantity of information to be handled. The extremely high calculation capacity necessary to achieve this compensation has been obtained by integrating 130,000 logical ports at high velocity.

The second improvement is the increased horizontal definition, which has been improved from the 1,440 pixel per line version used during Italia '90 to the 1,920 pixel per line version introduced at Telecom '91.

Alcatel Telettra's new HDTV codec has now passed the theoretical/experimental stage and production will begin in late 1992 at Telettra's plants in Vimercate (Italy) and Torrejon (Spain).

Even if the production volume will not be very large initially, this new product could prove to be of interest not only to broadcasting companies, but also to other organizations.

High definition can be successfully used in many applications where conventional television transmission is not effective. For example:

- Simultaneous distribution of films (the reel of film is substituted by a high-definition magnetic tape from which the stored information is then read and transmitted to any number of cinemas simultaneously from a central point);
- Television teaching (for example the transmission of film, for educational purposes, of surgical operations with images of many minute details that must be clearly seen);
- Data transmission for CAD (computer-aided design)/CAM (computer-aided manufacturing);
- Remote monitoring of those industrial processes that cannot be carried out in the presence of humans and need to be filmed, seen, and controlled in high definition.

The forecasts of the high-definition market are subject to numerous variables: initially the market will probably develop quite slowly. The first applications to be developed will be professional, while a widespread domestic usage will require a consistent increase in the rate of replacement of television sets, currently calculated at around one billion sets worldwide.

Finally, as for radio broadcasting, Alcatel Telettra's HDTV codec is not affected by the standardization problems currently being debated in Europe, since it is compatible with all broadcasting systems currently in use.

Telettra, which was founded in 1946 and became part of the Alcatel group in 1991, is a world leader in its field, supplying systems to over 80 countries. Alcatel currently has nine operations in Italy, and employs some 6,300 people (about 45 percent of whom hold degrees or diplomas). Alcatel also holds shares in six industrial corporations.

Within the Alcatel group, the company is active in the fields of radio communications, space and defense, and network systems, producing a vast range of solutions and of cable transmission equipment. Furthermore its activities encompass all the stages necessary for the realization of turnkey plants, from network design and engineering to the production of the equipment, its installation and maintenance, and personnel training.

NETHERLANDS

'Integrated Digital Network' Launched

92AN0169A Rijswijk POLYTECHNISCH WEEKBLAD in Dutch Dec 91 pp 40-42

[Article by Jelle Kok: "Competitor, Not Trendsetter: IDN Linkup With ISDN"]

[Excerpts] The many advantages of ISDN [Integrated Services Digital Network] services have been discussed since 1980. The technology is available for the infrastructure as well as for peripheral equipment. However, the gradual introduction of ISDN has only just begun. In the meantime, an alternative for switched digital connections was introduced at the beginning of the year in the Netherlands: IDN (integrated digital network). The IDN services package which PTT Telecom is offering across the country, substantially overlaps a number of applications which are designated for ISDN. This is a good reason to investigate what is possible and what is not possible, in particular, as international IDN links are rapidly becoming available.

The UK is ahead of the Netherlands and has offered a kind of ISDN, which is comparable to our IDN, for some years. Users in the UK have shown considerable interest in this service, especially for various data applications. In most cases it is used for backup purposes.

Initial experience with IDN in the Netherlands also indicates that the backup facility for a 64-kbit/s leased line or other digital connection is useful. This can be performed fairly easily by means of a special adapter which monitors the digital connection and independently constructs a transparent connection via IDN if it is interrupted. The permanent connection may be a digital leased line or a 64-kbit/s channel in a multiplexer or a PABX [private automatic branch exchange]. As the capacity of a connection which is not used for speech between two operating centers is generally used for data, the latter, in particular, is the most frequent. That is logical; however, the reliability of such data connection depends on the availability of the PABX.

The above cases are one-to-one backups, i.e., each digital connection has its own backup facility. However, n-to-1 applications, where the client's own network management system initializes the backup, are also possible.

Videoconferencing via IDN

Until recently, video transmission still required broad bandwidths. However, the development of advanced compression techniques has made it possible to apply image telephony or videoconferencing using a relatively narrow bandwidth. [passage omitted]

The systems which are currently available for videoconferencing are mainly used by large organizations, especially for international or intercontinental connections. In order to bring it within reach of lesser gods, standards will have to be adapted. CCITT [Consultative Committee of International Telephone, and Telegraph] is busy working on this. One of the opportunities that ISDN offers is the use of both B-channels as a single 128-kbit/s channel. For example, 112-kbit/s of the channel would be used for video and the rest for compressed audio, data, and control information. IDN offers the same facility. It does, however, require two separate connections and the possibility of combining both channels into a single channel and to compensate for signal delay.

Remote Control and Monitoring of Bridges

Besides speech, image, and data transmission, I(S)DN is also suitable for a number of remote control and monitoring applications. In principle, a normal analog telephone line could do the job, but if sound or video images have to be transmitted, the bandwidth is not sufficient. This is the reason I(S)DN is preferred for remote control and monitoring of bridges and sluices. [passage omitted]

Demoproject

At the beginning of the year, the Ministry of Public Works in collaboration with PTT Telecom set up a demonstration project. A test on a larger scale is being carried out involving the remote operation of a bridge. For this purpose, a bridge in Overschie has been fitted with video cameras and control equipment. The remote control functions represent the bridgeman's "hands, eyes, and ears." PLCs [programmable logic controller] which are remote controlled from an operating console, replace the "hands." Video cameras are required for the "eyes" as the quality of regular slow scan techniques is not high enough. In addition, real-time video requires too much bandwidth. This explains the use of compression techniques. As a rule, the installation of four cameras is sufficient and two or more video images are combined in a single video signal. Image selection is process-controlled and image regeneration frequency can be low. Two or four images can be shown simultaneously on a monitor.

The "ears" of the bridgeman play a very important role as the acoustic signal of a ship generally starts the bridge

operation process. It is not yet clear what will be used for this function. A microphone is indeed a possibility but it would have to be fitted with a precise threshold circuit. A height detector, an outside telephone, or calls via ship phone or car phone are being considered as alternatives. A combination of these means is also possible. Figure 5 [figure not included] gives an impression of what the equipment for remote control of a bridge via IDN would look like.

Pros and Cons of I(S)DN Glass Fiber Transmission

Two things are essential for the remote control of bridges and sluices: automation and communication. Programmable controls, such as those used for several other projects, can be utilized to meet automation needs. Despite the fact that interaction with shipping is subject to extremely high demands, the control function is relatively straightforward.

Glass fibers have often been used for communications on the projects which have been realized to date. It is a medium which offers major advantages; for example, with regard to available bandwidth, low maintenance costs, and high level of reliability. Yet, investment costs are high, especially over long distances.

However, I(S)DN is a public infrastructure which is available across the country. This means that the owner does not have to incur high investment costs for the transmission medium. In addition it offers more flexibility. Remote control is also economically viable for distances longer than 5 to 10 km which are generally the rule at present.

A disadvantage of using I(S)DN is the necessity of video and audio compression which increases the cost of equipment which is required on site. Protection is another aspect. I(S)DN is a public network and measures are necessary to prevent misuse.

[Box, p 41]

IDN Versus ISDN

With (narrowband) ISDN, the user has two 64-kbit/s channels at his disposal via the same physical connection. These so called B-channels are transparent and intended for speech, video, and data. In addition, a 16-kbit/s D-channel is used for signaling or data transmission. A large number of services will be available via ISDN. However, it is the universal access to these various services which is of particular importance.

In the first place, PTT Telecom considers IDN to be a predecessor of ISDN, but it is not unlikely that the system may have a function in its own right. A large number of applications which are not yet possible with ISDN, can already be performed using IDN. Let us take a look at the differences:

- Interfaces: IDN has an X.21 connection with a 15-pole sub-D connector as opposed to the S-bus connection for ISDN;
- Number of channels: IDN has a single channel of maximum 64-kbit/s, while ISDN has two 64-kbit/s B-channels and one 16-kbit/s D-channel;
- Communications structure: IDN utilizes the X.21 protocol which has been around for some time and which is intended for circuit- controlled public networks. ISDN utilizes a new protocol via D-channel;
- Services: IDN is intended exclusively for specific digital communications, whereas ISDN has many more possibilities. Links with similar networks in other countries or with ISDN already exist or will be established in the near future;
- Rates: IDN as well as ISDN have time rates which are related to the normal telephone network system. Start-up costs and monthly rates are higher for IDN than for ISDN. Depending on the distance, IDN is more economical than a 64-kbit/s leased line at an average use of six to eight hours a day.

[Box, p 42]

Introduction of I(S)DN

ISDN is currently being tested in Rotterdam. By mid-1992, it will be available in Amsterdam, The Hague, and Utrecht. If everything goes according to plan, another 30 cities will be connected to ISDN in 1993. The rest of the country will follow.

IDN has been available nationwide since March of this year. Special connections to digital telephone systems are used. If the subscriber is not connected to such a system, PTT Telecom provides an IDN connection to another system.

It is already possible to communicate with other ISDN networks via ISDN. The linkup of IDN and ISDN is to be completed in December of this year.

A linkup with a number of other countries can already be made with IDN.

SWEDEN

Ericsson's CEO on Restructuring Plans

92WT0135A Stockholm DAGENS NYHETER in Swedish 14 Feb 92 pp C 1, 3

[Article by Jan Nylander: "Ericsson Cuts Back"]

[Text] Telecommunications giant Ericsson is undergoing a technical revolution that is causing sharp personnel reductions.

"Within a five-year period we will have at most only half our present number of plants," Ericsson CEO Lars Ramqvist said on Tuesday.

As he presented the preliminary figures for 1991, he stressed that the concern would continue to invest in research and development.

Last year the budget increased by over 2 billion kronor and there will be none of the cuts that Ramqvist predicted last fall when new orders dropped and profits fell.

"We will continue our extensive investments in technical development, despite the present economic situation. These investments are absolutely necessary for our future," Ramqvist said.

In the spring of 1990 Ericsson began making cuts in its labor force and these cuts are continuing in full force today. A total of 8,000 jobs will be eliminated from the organization.

"We are now halfway there," Ramqvist said. The majority of the cuts that remain will involve jobs in other countries.

Most of the program will be completed in 1992. "There will be some cutbacks in 1993, however," Vice President Carl Wilhelm Ros said. He stressed that the concern's top management could have been much tougher.

"One person can now do the work of five with the new digital technology that is replacing the old analog systems. If we utilized all possible efficiency measures, we could eliminate many more than these 8,000 jobs from the organization."

Lars Ramqvist also touched on the revolutionary changes in the concern that are resulting from the new technology.

"At present, we have 65 factories around the world. In five years we will only have about 30 plants left—and that is assuming that we manage to increase our volume.

"We cannot put any percent signs on future cuts. A lot depends on the economic climate."

He described a process whereby the new technology would increase the need for experts and engineers, while reducing the number of ordinary factory jobs.

"Halving the number of factories would not necessarily cut the number of jobs by a similar amount," Ericsson's public relations chief Nils-Ingvar Lundin said. There may be mergers, for example, resulting in larger units.

Ericsson Expecting Low Profits This Year

"The first half of the year will be extremely weak, so that we anticipate continued low profits in 1992." This prediction was made by Ericsson's CEO Lars Ramqvist on Tuesday when he presented the preliminary results for 1991.

Before-tax profits were 1.6 billion kronor, which represents a dramatic drop from the previous year's results of 4.9 billion kronor.

"In principle, however, profits were just as good as the year before," Ramqvist said, pointing out that the concern had sustained future restructuring costs of about 600 million kronor.

"In addition, we have increased technical development by far more than 2 billion kronor."

The results include capital gains of 229 million kronor, compared to 112 million kronor for 1990.

Invoices increased marginally to 45.8 billion kronor, compared to 45.702 billion in 1990.

"We were aiming at much higher figures," Ramqvist said. "But the economic downturn has hit a number of our key markets quite hard." He mentioned Spain, Great Britain, and Australia, in particular.

"We lost 80 percent of our market in Spain last year. We have a large plant in Madrid with 3,000 employees. Obviously, we cannot suffer a reduction of this magnitude without significant losses."

He pointed out, however, that Ericsson had held its position in public telecommunications, where AXE exchanges totaling 6.5 million lines were delivered. "In addition, we have strengthened our position in the radio sector."

Ericsson is the world's largest producer of mobile telephone systems with over 40 percent of the world market. "We have well over half the world market in the new digital technology," Vice President Ros said.

During the final quarter of last year new orders increased by 16 percent, which compensated for part of the earlier losses. The volume of orders in 1991 was 44.7 billion kronor, down 9 percent from the previous year.

Ramqvist stressed that uncertainty over when the economy will turn around makes it extremely difficult to make a prediction concerning this year. Moreover, the steps that have been taken will not begin to have an effect until late in the year. It has been recommended that share dividends remain unchanged at 3.50 kronor. The number of employees is being reduced by 8,000 during 1991 and 1992.

Profits Before Taxes, Billions of Kroner

1989	3.715
1990	4.855
1991	1.6 (- 67)

Approximate Market Trend for Ericsson Unrestricted Class B Shares Since 1989

Year	Beginning of Year	End of Year
1989	25	180
1990	180	200
1991	200	120

SWITZERLAND

Swiss Mobile Phone Contract Awarded

92WS0269O Chichester INTERNATIONAL TELECOMMUNICATIONS INTELLIGENCE in English 2 Dec 91 p 4

[Unattributed article: "Switzerland: Ericsson and Ascom Win GSM Contract"]

[Text] The Swiss PTT ([Post, Telegraph, and Telecommunications] administration) has chosen Ericsson and its local partner Ascom to install the new national digital mobile telephone system, NATEL D GSM [Special Mobile Group], with Ericsson being selected as sole supplier of all equipment for the system through to 1995.

The order, valued at SKr500 million, is for the delivery of six AXE switches, 205 digital radio base stations and network planning. Installation will be carried out between 1992 and 1995. When installed, the system will serve 200,000 subscribers and cover all the major Swiss cities and highways.

Earlier this year, Ericsson supplied the Swiss PTT with a GSM pilot system which was displayed in Geneva during the Telecom '91 exposition in October.

This is the second time the PTT has contracted Ericsson to create a national mobile telephone network. In 1987, Ericsson and Ascom installed the major portion of the Swiss analogue NMT900 network. To date, Ericsson has delivered eight AXE switches and a large number of radio base stations for the Swiss NATEL C analogue network.

The NMT900 network currently has more than 170,000 subscribers and is adding between 4,000 and 5,000 new subscribers every month.

Ericsson recently strengthened its relationship with Ascom when they created a joint venture company to concentrate on development of SDH [Synchronous Digital Hierarchy] equipment. Contrary to reports then, Ericsson is not planning a similar joint venture with Fuba. It already has one (see ITI Issue 299).

UNITED KINGDOM

University Develops Laser-Operated Optical Switch

92WS0269Q Chichester INTERNATIONAL TELECOMMUNICATIONS INTELLIGENCE in English 2 Dec 91 p 5

[Unattributed article: "University Develops Optical Switch"]

[Text] A team of researchers in Britain claims it has produced the world's fastest switch—a device operated by laser that could be capable of handling 2,000 simultaneous TV channels or 1.2 million telephone conversations. Officially known as a nonlinear coupler, the switch has been developed in Glasgow University's electronics and electrical engineering department and is based on a semi-conductor wafer.

The device operates by using intense pulses of laser light lasting 10 picoseconds. This means that future optical fibre communications systems will be able to handle much more information. Currently, optical fibres used in transatlantic links are capable of handling information at speeds much faster than those at which conventional electronics can operate.

Earlier this year, the new switch was tested at Central Florida University's Centre for Research in Lasers and Electro-Optics. It was tested with 10 picoseconds of light and was shown to be instantaneous on this timescale. Researchers believe the performance of the switch can be further sped up. They firmly believe this is the fastest semiconductor switch and that is should operate at times of 10 femtoseconds—a femtosecond is a one thousandth of a picosecond. Another notable feature is that using the switch consumes practically no power.

Researchers Develop Optical Amplifier

92WS0227A Duesseldorf VDI NACHRICHTEN in German 13 Dec 91 p 22

[Article by Richard Sietmann: "Optical Amplification for 40 Million Television Households; Cable Hookup Costs Could Be Considerably Lowered"—first paragraph is VDI NACHRICHTEN introduction]

[Text] Duesseldorf, 13 Dec—Only passive optical amplifiers provide access to the full transmission power of fiberglass. However, these expensive high tech components are still only installed in the television network in sporadic fashion. British Telecom engineers have now developed in laboratory experiments a technique that may soon make it possible to reach an entire city of a million with passive television distribution.

With fiberglass there is, for the first time available to communications technology, a means of transmission of practically unlimited bandwidth which exceeds the terrestrial wavelength spectrum by several orders of magnitude. This is why the idea of bringing fiberglass right into each subscriber's home was above all discussed from the point of view of sheer unlimited transmission capacity and potential expansion of the supply of communication services.

Compared with the more than 30,000-GHz bandwidth of monomode fiber glass, the 47-450-MHz spectrum of today's BK [expansion not provided] network for cable television based on copper coaxial cables looks really skimpy. Innovations like the conversion to digital transmission or the introduction of high density television

(HDTV) could only be realized with the available network, if at all, with a considerable reduction in the usual number of channels.

Copper cables create another disadvantage. Because of the high degree of attenuation caused by transmission and signal-splitting, they require an intermediate amplifier placed every 300 m on the average in the local distribution network to boost signals. This is why BK networks have been active networks up to now. Also, until recently optical transmission with fiberglass as a technical alternative did not seem to produce any real improvement. The amplifying power of semiconductor lasers in transmitters has up to now been enough to connect 200 subscribers in passive optical distribution networks without intermediate amplification. Thanks also to receiver sensitivity augmented by heterodyne detectors, only slightly larger numbers of connections with about 1,000 subscribers were obtained sporadically in laboratory experiments—by, for example, the Heinrich Hertz Institute in Berlin or in connection with the RACE [Research and Development Program in Advanced Communications for Europe] 1010 Project.

But engineers of the British Telecom Research Laboratory (BTRL) in Martlesham, northeast of London, have now impressively demonstrated that the architects of the system can now completely rid themselves of these severe marginal limitations. They worked out an experimental system in the laboratory that can provide close to 40 millon television subscribers with 384 digital video channels at a data rate of 26.4 Gbit/s per connection from a distribution center. This extreme signal-splitting rate was possible through the introduction of only two optical fiber amplifiers. The two-stage laboratory system was essentially produced with so-called 1x7 fiber-fusion couplers and in this way, to begin with, it simulated a splitting of the transmitted signal into 4,116 signals after passing through the first amplifier in the main feed point. Connected to this was a 25-km-long transmission section to the "local BK-network distribution point," where a second optical amplifier split the signal into another 9,604 signals. The operational radius of a system like this meets the needs of even a large metropolis as concerns range and number of connections.

By way of comparison: The local networks of the DBP [Federal German Postal Service] Telecommunications Division do indeed provide service over a square area, each side of which is 8.5 km long. As a rule, this maximum range completely covers the area encompassed by a local telephone exchange. But this BK network is active in nature with numerous amplifier points on the way to the subscriber and it has a tree structure. The BTRL system, on the other hand, was based on a star structure and is completely passive from the local BK distribution point on. The advantage of the star topology lies above all in the fact that it is compatible with the structure of the telephone network. With it, program transfers and telephone services can later be handled in one network.

Alan Hill and Richard Wyatt of the BTRL achieved the high data-transmission rate per subscriber of their system by means of a wavelength multiplex with a total of 12 wavelengths in the optical wavelength range of from 1530 to 1554.5 nm. The data-transmission rate of these wavelength channels came to 2.2 Gbit/s—high enough to provide every single one of them in turn with 32 70-Mbit/s video channels in the time multiplex.

These really fantastically encouraging results were obtained through the introduction of fiber amplifiers impregnated with erbium, apart from the necessary peripheral equipment, externally these do not look any different than ordinary fiberglass. The amplification effect is created by impregnating the fiber core with laser-active erbium, one of the elements in the rare earth periodic-table series.

The energy required for this is supplied through stimulation of the erbium atoms with the light from a continuously operating pump laser. In the process, erbium electrons are raised from their basic state to a higher state of energy which they at first remain in until the thus-accumulated energy is again released by the signal wave that rushes past them. This is the stimulated emission laser effect: As the wave moves through the erbium-impregnated fiber, its intensity increases at an exponential rate. The amplification is not only in phase with the signal wave, but is also so rapid that it can follow the digital pulse modulation into the 100-GHz range.

While other impregnation materials for other wavelengths are still being experimented with—for example, neodym and holmium at 1.3 µm—the erbium-impregnated fiber amplifiers that operate in the important optical long-wave 1.53-µm window have recently been available on the market. They are being offered by BT&D (a joint subsidiary of British Telecom and Dupont), Furukawa Electric, and AT&T, among others, and they cost about $20,000.

They amplify at about 20 to 20 dB and do so not only at a fixed optical wavelength, but also over a wavelength band of about 35 nm in width, which corresponds to barely 4,500 GHz. This makes the amplifier an obvious candidate for signal transmission with the conventional WDM [optical wavelength-division multiplexing] wave-multiplex method as well as for the future optical multiple-channel method (CMC [central memory circuit]), with which the individual channels are closely packed together at intervals of only 5 GHz.

Laser Costs Will Be Considerably Reduced

A single erbium-impregnated fiber amplifier with an attenuation of 21 dB already produces 126 times more transmission laser amplifier power so that 25,200 subscribers can now be connected instead of the 200 that are connected at present. Thus a higher degree of cost sharing is produced for the lasers as well as for the fiber amplifier. A DM20,000 laser that serves 200 subscribers in a passive network costs DM100 for each connection;

combining the same laser with a DM30,000 fiber amplifier will now serve 25,000 subscribers for only DM2 per connection.

Another feature of erbium-impregnated fiber amplifiers is that they can be cascaded, that is, they can be connected in succession with one another. In another experiment, Hill and Wyatt of the BTRL made a long-distance connection over a distance of 527 km between the main feed point and the local distribution station with a total of eight amplifiers. In this way fiber amplifiers are opening up entirely new degrees of freedom to design fiberglass BK networks for the distribution of television to the point of planning a national, complete coverage cable network with only one BK distribution center. This would indeed be the "optical ether."

END OF FICHE

DATE FILMED

29 APRIL '92